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ORIGINAL COMMUNICATIONS.

ON THE STRUCTURE OF THE SYNOVIAL MEMBRANE COVERING THE SURFACE OF ADULT ARTICULAR CARTILAGE.¹

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FROM the period when the structure and relations of the animal tissues first attracted the attention of anatomists, great diversity of opinion has continued to exist on the subject of the organization of the joints.

For a long time, the most opposite views were entertained respecting the essential nature of Articular Cartilage. Some anatomists held that it was vascular ; others, while allowing it to possess vessels, restricted them to those conveying white fluids ; a third party contended that it contained no vessels whatever ; and a fourth, that it presented no one trace of organization. Several years ago, in a paper published in the *Philosophical Transactions*,² I endeavoured to prove that articular cartilage should be classed with those animal tissues which are nourished, grow, and are liable to certain diseases, though deprived of the presence of blood-vessels. It is a source of great satisfaction to me, that since the publication of the paper alluded to, other investigators have found their researches tend to the same conclusion, and that there is a general recognition of the fact, that articular cartilage and the non-vascular organs differ from all others by drawing their nourishment from vessels ramifying in their immediate vicinity, but not permeating through them. One subject, however, of great interest to the surgeon and the pathologist, still remains to be investigated, and that is, the causes of the introduction of blood-vessels, during disease, into the articular cartilage and non-vascular tissues, and the explanation of various phenomena connected with the peculiarities of their organization. Little progress, however, in this department of pathological investigation can be

¹ An abstract of this paper was read, and the illustrative preparations exhibited, at the meeting of the Pathological Society of London, on the 16th of January, 1849.

² Researches tending to prove the Non-vascularity and the peculiar uniform mode of Organization and Nutrition of certain Animal Tissues. Part II. 1841.

expected, until another question, concerning the anatomy of the articulations, has been satisfactorily settled. I allude to the relations which subsist between the synovial membrane and articular cartilage; a point which has given rise to much diversity of opinion. Bichat affirmed that synovial membrane did cover the surface of articular cartilage; but he appears to have arrived at this conclusion rather by analogical reasoning than by actual demonstration. Sir Benjamin Brodie agrees with the view of Bichat, which his pathological researches tend to corroborate. He says: "where it (the synovial membrane) is reflected over the cartilage, it is thin and readily torn; its existence, however, even here, may be always distinctly demonstrated by a careful dissection."¹ It might be supposed, that by the aid of the microscope, this question would have been decided ere now; this, however, is not the case, for difference of observation has given rise to difference of opinion among microscopical observers. Thus, Henle, writing in Müller's *Archives*, in 1838, says: "the epithelium is continued in a thinner layer over the articular surfaces of the cartilage, on which it is separated from the cartilage corpuscles by a thin layer of cellular tissue." Professors Todd and Bowman, in their recent valuable work on physiology, make the following statement in opposition to that which has just been quoted:—"It (the synovial membrane) may be traced to the edge of the cartilage; to this, it is very intimately adherent for some little distance, beyond which, it cannot be followed where the cartilage has been exposed to pressure during the motions of the joint."² In the paper, in the *Philosophical Transactions*, to which reference has been made, I gave the particulars of a dissection of the knee-joint of a foetal calf, where I removed the synovial membrane from very nearly the entire surface of the articular cartilage, covering one condyle; to which it was attached by a considerable layer of cellular tissue, containing the ramifications of blood-vessels.

Professors Todd and Bowman do not dispute, that in the foetus the synovial membrane is continued over the whole of the free surface of the cartilage. It requires, indeed, but a superficial examination to convince any competent observer of the correctness of that view. The question alone, to which any interest can therefore attach, is what becomes, in adult life, of the synovial membrane which is acknowledged to have covered the cartilage in the foetal period. Is it absorbed, or is it, as some writers have conjectured, worn away by attrition; or does it become incorporated and perfectly blended with the cartilage? It appears to me, that not one of these views is correct, and that there is no difficulty in demonstrating, fully and satisfactorily, the persistence of the synovial membrane during every period of life, and its complete envelopement of the free surface of articular cartilage, so long as the latter continues in a healthy condition.

If the synovial membrane, which surrounds the border of adult articular cartilage, be traced to the margin of the latter, it will be found to adhere very firmly; and, should an attempt be made to tear it from the surface of the cartilage, it will often give way; in some parts, how-

¹ Pathological and Surgical Observations on the Diseases of the Joints, p. 7. 1836.

² The Physiological Anatomy and Physiology of Man, p. 127.

ever, and that not unfrequently, a continuation of this synovial membrane will be separated by laceration, in the form of a thin transparent layer, from the surface of the cartilage to the extent of several lines. In some specimens, I have retained this transparent membrane continuous with the thicker and opaque synovial membrane surrounding the cartilage. Another mode of showing the presence of this delicate tissue on the surface of articular cartilage, is to make a very thin flap of the latter, parallel with its surface, and then, by means of a pair of broad-pointed forceps, to draw it gently, but firmly, in the same direction as that of the section. As a general result of this process, it will be found, that a layer of transparent membrane, varying from two lines to half an inch in length, will peel from the cartilage. A third way of demonstrating the existence of this membrane, is to place a portion of articular cartilage under water, and to scratch its surface with the sharp point of a firm needle till a fine membrane is observed to be lacerated, under which, the needle may be introduced, and by careful manipulation, the adhesions between it and the cartilage may be broken, and considerable portions detached.

The question now to be considered is, whether this fine tissue, so detached, is the synovial membrane? When examined by a magnifying power of 500 diameters, portions of it which have been removed from the circumference of the cartilage, or parts which have not been subjected to much pressure, appear to be translucent, and interspersed throughout with fine filamentous lines, resembling in character areolar tissue. This appearance may be seen in Figure 1. If a portion of the membrane, taken from the central part of the cartilage, be examined with the same magnifying power, scarcely any appearance of this areolar tissue will be detected, and it will be found translucent, with a nearly homogeneous structure.

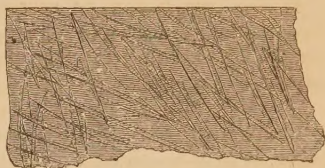


Figure 1.

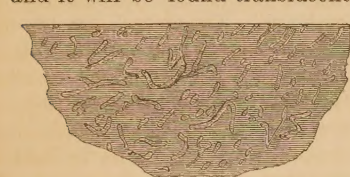


Figure 2.

Adherent to its inner or cartilage-surface, however, numerous fine points may be observed, as seen in Figure 2, which appear to be particles of cellular tissue that have been lacerated in the process of separating it from the cartilage. Sometimes a portion of the membrane, taken from the central part of the cartilage, will present but few of the above-described points; but upon its inner surface very shallow depressions will be observed, corresponding exactly in size and shape with the corpuscles of articular cartilage over which they have been placed, and against which they have been firmly compressed in Fig. 3. In other instances, one or more of the cartilage-corpuscles are torn away, one may be seen to adhere to the inner surface of the membrane in Fig. 3.

The free surface of this membrane is smooth, and presents a very fine polish, to which is owing the glistening



Figure 3.

appearance of cartilage, which it loses the instant it is denuded of this membrane.

That the tissue just described is not a layer of cartilage, seems to be clear, from the fact of no corpuscles being found in it; from its extreme and yet uniform softness and tenuity, the latter being so great that the membrane folds upon itself when floating in a few drops of water; from the facility with which it is separated from the surface of the cartilage itself, without the necessity of using any cutting instrument; and, lastly, from the circumstance that it is visibly continuous with the synovial membrane around the joint. The only fact which seems to militate against its being considered as synovial membrane, is the absence from its surface of epithelial cells. The absence of the epithelial layer may, however, be accounted for, perhaps, from the facts that it is not, like the reflex synovial membrane, a secreting organ, and from its being subjected to great pressure; nor can the absence of it be deemed a sufficient reason for denying that the tissue described is synovial membrane, in the face of so many cogent reasons for identifying it with that membrane.

The conclusion to which I have been led is, that all healthy articular cartilage is invested with synovial membrane, which membrane, however, differs from the condition in which it is ordinarily met with, in being deprived of an epithelial layer.

If this conclusion be correct, it will, I think, appear, to those who have studied the diseases of articular cartilage, that it may lead to more precise views than heretofore of the process of ulceration, and the *modus operandi* of that change.

POSTSCRIPT.—In confirmation of the view advanced in the above paper, it may be added, that at the meeting of the Pathological Society, when an abstract of this communication was laid before its members, Dr. Garrod stated, that upon a careful examination of some specimens, where gouty deposit existed on the surface of articular cartilage, he found this deposit covered by a fine membrane. Dr. Garrod has been so kind as to furnish me with one of his specimens, and having submitted it to microscopic observation, I find that it quite agrees in its structure with the membrane of which the description is given above.

12, Argyle Place, St. James', January 1849.

CASE OF MELANOTIC CANCER OF THE SCROTUM.

By T. B. CURLING, Esq., Lecturer on Surgery at the London Hospital.

EXCISION OF THE MORBID PART—RETURN OF THE DISEASE—DEATH IN SIX YEARS AFTER THE OPERATION.

MR. G., a cabinet-maker, aged 32, enjoying tolerable health, consulted me in November 1842, on account of a fungous growth on the Scrotum. The tumour was about the size of a small walnut and of a dark colour: it had an irregular granular surface, and was attached to the left side of the scrotum by a narrow peduncle or neck. About an inch on one side of this tumour, I observed a small dark spot, apparently produced by some black deposit beneath the epidermis, raising it a little above the

surrounding surface. The patient stated that the fungous growth was first noticed about three months before, when it resembled the little speck just described, which had been observed only a fortnight. It had increased rapidly of late, but gave no pain. The shirt was discoloured by a slight discharge and bloody marks. There was no enlargement of the glands in the groins. I excised the tumour and small speck near it, including a portion of sound scrotum. On making a section of the morbid growth, the fungus appeared to spring from the cutis. Its base was hard and of a scirrhus character; but the projecting part was soft and easily broken down. Small irregular spots of melanic pigment were observed on the cut surface, as well as on the exterior of the tumour, and the little speck seemed to consist of a similar matter deposited immediately beneath the epidermis. The wound healed favourably and quite closed in a fortnight.

May 31st, 1843, about eighteen months after the operation, I was requested to see Mr. G., in consequence of a return of the disease. On examination, I found three black specks in the vicinity of the cicatrix, on the left side of the scrotum. These had been observed only three or four days. As he complained of uneasiness in the left groin, I examined the part, and found some glands slightly enlarged and indurated. Thinking it possible that the enlargement might not be of a specific character, I directed the *ceratum hydrargyri c.* to be applied. I saw my patient next on the first of the following September. The glands in the groin had then increased in size and were very hard. I afterwards lost sight of Mr. G., until March 11th, 1844, when he called again to consult me. I found a firm indurated mass, about the size of an almond, implicating the cicatrix in the scrotum. There was an enlargement of inguinal glands, forming a tumour the size of an orange, and a smaller swelling the size of a hen's egg just below it. He suffered a good deal of pain in the part, but was able to continue at his occupation. His general health seemed slightly impaired. After this visit, I saw no more of my patient for more than four years.

On the 10th of October last, (1848), I was requested to visit him. I found him lying in bed and suffering a good deal of pain from the tumour in the groin, which had increased to the size of a very large cocoa nut. It was of a rounded form, smooth, soft, and had an elastic feel. The skin covering it was mottled, and of a dark livid colour. The induration in the scrotum had increased very little, but there was a cord extending from it to the inguinal tumour. It appeared that he had continued at his occupation until about three months back, when, after some more exertion than usual, the tumour became more painful and rapidly enlarged, and in a few weeks doubled its previous size. Up to this period he had enjoyed tolerable health, and had latterly gained flesh; but since the attack of pain and change in the tumour, he had become thinner and weaker, and had been confined to the bed or sofa. His stomach also had become irritable, and his digestion impaired. Bowels costive. I ordered the dilute hydrocyanic acid, and opiates at night, which afforded him relief; and the bowels to be kept open by injections or a mild aperient pill.

November 23, I was sent for at 9 A.M., in consequence of his having been seized with severe pain in the abdomen. I found no abdominal

tension nor tenderness on pressure, but about every ten minutes he was attacked with violent pains in the abdomen, attended with straining as if at stool. The pains were always brought on by taking food into the stomach. They had lasted some hours, and distressed him extremely. His countenance was anxious—his pulse quick and thready. His bowels had been relieved the day before. Suspecting that these pains were caused by some tumour developed within the lower part of the colon or in the rectum, and exciting spasmodic action of the larger bowel, I ordered an injection containing forty drops of laudanum, and poppy fomentations to the abdomen, and allowed the patient to take only milk with a small quantity of brandy in it, in spoonfuls. Shortly after the injection, the pains subsided; but they returned after an intermission of six hours, though less violently than before. They were again relieved by an opiate injection, which it was found necessary to repeat on the two following days.

November 25th, I was sent for in haste at 9 P.M., in consequence of hæmorrhage having taken place from the bowels. It appeared that whilst asleep, he was disturbed by a sensation of something having suddenly given way in his inside, which was followed almost immediately by an evacuation. I found that about 12 to 14 oz. of blood had escaped at the anus, which was also blocked up with coagulum. The patient was cold, clammy, and faint. Napkins wrung in cold water were applied to the part, and I gave him some cold brandy and water with a little laudanum in it. No further bleeding occurred for some hours, but he continued to pass small quantities of blood in his stools, and gradually getting weaker, died December 7th. During the last few weeks, the inguinal tumour had remained stationary and caused very little uneasiness.

The body was examined thirty hours after death. The heart and lungs were quite healthy. The liver, spleen and pancreas were also sound. The kidneys were pale and the cortical structure slightly atrophied. A few of the mesenteric glands were slightly enlarged, but not carcinomatous. The lumbar glands were very little enlarged, but quite black. On minute examination, they were found to consist of nucleated cells containing black pigment. The colon was loaded with lumps of hardened fæces, and the rectum was blocked up with fæcal matter, which, at the lower extremity of the gut, was tinged with blood. Near the termination of the anus, there were two superficial ulcers about the size of a fourpenny piece. There was a small portion of carcinomatous deposit, slightly tinged with black pigment, in the cellular tissue of the scrotum, and connected with the cicatrix. The tumour was composed of a mass of carcinomatous matter, of a soft encephaloid character, which, at one part, had nearly made its way through the skin. A good deal of this matter was dead cancer tissue, particularly towards the surface. Some large veins filled with dark coloured coagula traversed the tumour. The abdominal muscles were involved in the disease, but it caused no internal tumour. Below the tumour, but closely attached to it, there was a large carcinomatous gland, which was imbedded in the upper part of the thigh. The skin investing the large tumour was tinged of a livid or dark brown colour.

The case, which I have just related, presents several features of

interest. It may be noticed as remarkable, and as contrary to our experience of the progress of melanosis, that the disease having reappeared at its original seat, and also in the groin, so early as six months after the operation, should subsequently have advanced so slowly, that after lasting six years, the only internal parts affected, were the lumbar glands, and these only in a very slight degree. When the return of the disease was first remarked, I had considered the propriety of excising the diseased portion of scrotum and dissecting out the enlarged gland from the groin; but the results of operations for melanosis have been so discouraging that I was not disposed to suggest a fresh operation at once, and the patient neglected calling on me again, until the disease seemed too fully established in the system to justify any further use of the knife. This case is also interesting as confirming what has been remarked by pathologists in regard to the connection between melanosis and cancer. There was both cancer and melanosis in the scrotum; encephaloid cancer in the groin, and pure melanosis of the lumbar glands. It is a question with pathologists whether melanosis should be considered a carcinomatous disease; and Dr. Walshe, in his work on Cancer, gives no description of it, but briefly states his reasons for not regarding it as a form of cancer. I must, however, dissent from this view. It is true that the most marked character of melanosis arises from the presence of a black pigment, and that it generally originates in parts where black pigment commonly exists, as in the skin and eye. Black pigment may be deposited, also, in parts, independently of any cancerous formation. Nevertheless, I believe that Laennec was right in considering melanosis as a variety of cancer.¹ The detection of nucleated or cancer cells in all cases of true melanosis in which they have been sought for, and the constant occurrence of secondary formations, sometimes of a similar character, at other times of cancer without the pigment, seem to me to establish its claim to be regarded as a genuine cancerous disease; whilst the addition of the black pigment to the cancerous matter, its prevalence throughout the body, and abundant, indeed, extraordinary development in parts where no pigment exists in their healthy state, gives to this form of the disease peculiar characters, well entitling it to be distinguished from other forms of cancer. Carcinomatous disease originating in the skin, such as chimney-sweeper's cancer, cancer of the lip and eyelids, rarely leads to internal secondary deposits; whereas, melanosis commencing in the skin, is so constantly followed by secondary formations in numerous parts of the body, that an operation for its permanent eradication, even at an early period, is regarded as almost hopeless. This, then, is another distinguishing feature, and, as I have already remarked, a peculiarity in the case I have related was the limitation of the melanotic deposit to the lumbar glands. Notwithstanding the naturally dark colour of the skin of the scrotum, this is the only instance of melanosis occurring in this part, with which I am acquainted.

The immediate cause of death was the hæmorrhage from the ulcer in the mucous membrane of the rectum, and it may be doubted whether this lesion was the direct result of the original disease, for which the patient came under my care.

¹ This opinion has been adopted by Dupuytren, Cruveilhier, Müller, and others.

CLINICAL OBSERVATIONS ON THE PATHOLOGY AND TREATMENT OF THE DROPSY WHICH FOLLOWS SCARLET FEVER.

By S. SCOTT ALISON, M.D., Licentiate of the Royal College of Physicians, London.

THE object which the author of this paper has in view, is to contribute to the natural history of an interesting, and sometimes irremediable disease, viz., the Dropsy¹ following Scarlet Fever; and to indicate the most suitable treatment, both for the cure and the prevention of this affection. Its natural history will be illustrated by an historical exposition of the antecedent, concomitant, and subsequent circumstances, of twelve cases carefully observed.

In order to obviate the necessity of much repetition, and to facilitate reference, the cases are numbered. The following table presents the character of each case, in connexion with a few leading points, viz., fever, eruption, desquamation, dropsy, albuminuria, and result; and serves to give a bird's-eye view, of the cases under analysis.

TABLE OF TWELVE CASES OF DROPSY AFTER SCARLET FEVER.

No.	Name.	Age.	Fever.	Eruption.	Desquam.	Dropsy.	Albuminuria	Result.
1	Eliza Finch	7	General, inflammatory.	Bright, general.	Extensive.	General.	Much albumen.	Recovered
2	M. Edwards	12	Ditto.	Ditto.	None.	Slight (face only).	Very little.	Ditto.
3	Hen. Finch	4	Ditto.	None, according to mother.	General.	General.	Not sought for.	Ditto.
4	Chas. Fairy	1	Ditto.	None.	None.	Ditto.	Much albumen.	Ditto.
5	John Stacey	4	Ditto.	Bright, general.	General.	General (empyema).	None.	Died.
6	Chs. Childs	4	Ditto.	None.	None.	General.	Ditto.	Ditto.
7	Fred. Cook	6	Ditto.	Bright, general.	Slight (face only).	Ditto.	Considerable.	Recovered
8	Edw. Cook	5	Ditto.	Ditto.	General, persistent.	Ditto.	A trace.	Ditto.
9	Henta. Ford	4	Ditto.	Ditto.	Ditto.	Slight (face only).	None.	Ditto.
10	Geo. Cator	3	Ditto.	Ditto.	Ditto.	Do. (face & feet only).	Very little.	Ditto.
11	M. A. Ford	8	Ditto.	Ditto.	Ditto.	Do. (face only).	Not sought for.	Ditto.
12	C. Milbourn	6	Ditto.	Ditto.	None.	Do. (face & feet only).	None.	Ditto.

These twelve examples of Dropsy following Scarlet Fever, form only a very inconsiderable portion of the cases which have occurred in the author's practice, during the last fifteen years; and they are selected for review here, in preference to others, because they were narrowly

¹ For convenience, the more general term Dropsy is here made use of, to embrace every form of watery effusion into the cellular tissue, and shut sacs of the body. The words Anasarca and Œdema are used in their strictly limited sense.

watched, and laboriously recorded, as materials for future comparison and analysis. They came under the care of the writer in his late capacity of physician to the Northern Dispensary, and embrace all the cases of the disease which fell to his charge from June 1844 to January 1845, both months included; during which period the parent disease, scarlet fever, prevailed in the metropolis to a very great extent.

Instead of giving a detailed and separate history of each case, the writer has thought it better to treat each point of interest in connexion with the whole group of cases. In this way, the facts of each case will not only be elicited, but presented in a prominent manner, and after the numerical method. The reader will thus be enabled to form a ready decision as to the comparative frequency of certain symptoms and occurrences. Considerable labour has been undergone in noting down the facts at the time, and in subsequently arranging them in a statistical form. Some omissions have unavoidably occurred; and, in a few instances, some minor facts, not likely to be mistaken, in connexion with the history of the cases previously to their coming under the eye of the writer, have been given on the testimony of parents, and may be relied on as, on the whole, worthy of credence.¹

The *previous health* had been sound in eight of the patients; and delicate in four, only one of whom (No. 3), suffered a severe attack of anasarca. The *habit of body* in three of the cases, was decidedly strumous. Two of these (Nos. 1 and 3), were brother and sister, and had dropsy in a severe form. The *comforts of life* were enjoyed to a large extent by ten of the patients, considering their position in society. They had comfortable warm homes, sufficient and wholesome food, and had been carefully attended to by their parents. Miserable destitution was the lot of one child (No. 6), who had general anasarca, and who subsequently died. One (No. 4), who had general dropsy, with bloody urine, was the subject of maternal neglect and recklessness.

The ages of the twelve patients are shown in the following table.

Years	1	2	3	4	5	6	7	8	9	10	11	12
Number of Cases	1	0	1	4	1	2	1	1	0	0	0	1

Relationship between the patients.—Six of the patients were brothers and sisters, belonging to three different families: those in each of the three families suffered much in the same manner, and to the same extent.

Sex.—Eight of the twelve patients were boys: four were girls, of whom only one suffered dropsy to a great extent.

Season.—The greater number of cases occurred in summer and autumn. Three occurred at the beginning of winter. One of the fatal cases occurred in August, the other in October.

PERIOD OF ERUPTION AND DESQUAMATION. — The *eruptive fever*

¹ It was the intention of the author to have presented the following facts to the notice of the profession before this time; but circumstances have prevented this from being accomplished, and they are now reduced to the present form, at a period when his avocations afford him but little leisure. The plan and limits of this paper do not admit of references to the important contributions of other authors on the same subject; but as the author claims no originality, it is hoped that their omission will not prove the ground of offence to any one.

was smart and moderately inflammatory in all the patients. The *eruption* was not observed in three cases (Nos. 3, 4, and 6), of which all were remarkable for their severity, and one for its fatal termination. In case No. 4, the writer observed general and persistent desquamation; the evidence respecting the non-appearance of the eruption was derived from the mother, an intelligent woman. In nine cases, the eruption came out in the usual manner, was bright and distinct, and general over the surface of the body: it remained out the usual time, and declined in the ordinary manner.

The *fauces* were affected in eleven cases; in the twelfth, it was doubtful whether or not they were affected. In the eleven cases, there was considerable inflammation, accompanied by swelling; but in none of them did ulceration or sloughing occur.

The *lymphatic glands* of the neck were considerably swollen in three moderate cases of dropsy; and much swollen, with an abscess as large as a hen's egg, in a severe case. In two moderate cases they were healthy. No mention of their condition is made in six cases.

The *mucous membranes* were in a state of considerable irritation in ten cases. In two very moderate cases, they are reported to have been healthy.

The *quantity of urine* passed during the eruptive fever, was ascertained, in almost every case, to be decidedly scanty. In three cases, (Nos. 7, 8, and 10), the subjects of which were under the writer's eye from the period of the first invasion of the parent disease, the urine was scanty during the eruptive fever; and, immediately before the period of effusion, it decreased remarkably in quantity, almost to total suppression.

Desquamation of the cuticle did not take place in four cases, viz., Nos. 2, 4, 6, and 12. In two of these cases there had been no eruption; in the other two, it had come out freely. In all the other cases desquamation occurred. It was confined to the face in No. 7, a case of general anasarca; and was general in the other cases, of which Nos. 3 and 5 were remarkable for the severity of the dropsical effusion. The integuments felt rough and hard, and communicated to the touch a sensation of resistance, like parchment. The cuticle came away in large scales, rather thick, and of a darkish colour. The desquamation occurred from time to time, during a period of two or three weeks; this was particularly observed in Nos. 9, 10 and 11, all cases of very slight dropsy; and in No. 8, a case of general dropsy of the cellular tissue. In No. 3, a case of non-eruption, the author observed desquamation of the cuticle. It is very probable, that, in this case, an eruption had occurred; but that it had been so slight, and short in duration, as to have escaped the observation of the mother. Yet, as no eruption was observed, the case is put down as one of non-eruption.

Relative dates of Desquamation and Dropsy.—In case No. 1, desquamation and dropsy were found at the first examination, and were concurrent throughout. In No. 3, dropsy began five days before desquamation. In No. 5, desquamation took place before dropsy, and had ceased before death. In No. 7, desquamation began a few days before dropsy, as also in Nos. 9 and 11. In No. 8, desquamation began eight days before dropsy, and was concurrent throughout with dropsy. In

No. 10, desquamation commenced nine days before dropsy, and accompanied it throughout.

State of the blood.—The blood was found to have a buffy coat in No. 7, a case complicated with pericarditis; the specific gravity of the serum was 1025. In No. 10, the specific gravity of the serum was 1025 on the thirteenth day after the commencement of the disease; a moderate degree of œdema of the face and feet appearing at this time. There was, in this case, very little albumen in the urine, but extensive and persistent desquamation.

Complications during the eruption.—In No. 7, pericarditis supervened, and arthritic pains were experienced in the wrists and ankles; the same affection of the joints occurred in No. 8.

The *condition of the vital powers* of each case, when first seen, is given in the following list.

1. Considerable power; circulation excited.	6. Exhausted; pulse 120.
2. Considerable power; circulation not rapid.	7. Some power; pulse 80.
3. Some power; circulation rapid.	8. Some power; circulation rapid.
4. Some power; pulse 120.	9. Considerable power; circulation quiet.
5. Exhausted; pulse 140.	10. Some power; pulse 140.
	11. Considerable power; pulse 100.
	12. Considerable power; pulse 120.

PERIOD OF DROPSICAL EFFUSION.—The dates of the appearance of the Dropsical Effusion, and other particulars, will be found in the following table. (*See next page.*)

The *blood* was cupped and buffed in case No. 1, the only one in which blood-letting was employed during dropsy. The specific gravity of the serum was 1025.

Complications during Dropsy.—In No. 1, there was partial coma, with intermittent pulse. In No. 4, hæmaturia occurred. In No. 5, there occurred pericarditis, pleuritis, and inflammation of the tunica vaginalis of the left testis, with sero-purulent effusion in the pericardium, right pleura, and tunica vaginalis. In No. 7, there was excitement of the heart's action, after symptoms of pericarditis, followed by very small and sometimes imperceptible pulse at the right wrist, with sensation of faintness.¹ In case No. 8, syncope occurred, with pulse weaker at the right wrist than at the left. The symptoms in No. 12 were complicated with arthritis.

Results.—Complete recovery took place in ten cases. Death occurred in two only, viz., Nos. 5 and 6, both of which were much exhausted when first seen by the writer.

Examination of the Body after Death was made in the two fatal cases. In the case No. 5, no fluid was found in the cellular tissue, the whole effusion having been removed before death. A few loose white fibrinous bands connected the pleura costalis with the pleura pulmonalis, on the left side. The cavity of the right pleura was filled with

¹ The difference in the pulse at the two wrists, in this and the following case, was well marked. The same circumstance has been noted by the author in other children, whose powers of life had been considerably reduced under scarlet fever. Perhaps the smaller development of the pulse in the right wrist may be due to its somewhat greater distance from the enfeebled heart, or to the additional break in the current of blood, produced by the subclavian artery of the right side coming off from the innominate.

TABULAR VIEW OF THE APPEARANCE OF DROPSY, ALBUMINURIA, ETC.

Cases.	Date of appearance from commencement of disease.	Date of appearance when first seen by the author. (1)	Duration.	Seat.	Average quantity of urine during rise and height of dropsy.	Colour of urine.	Sp. gr. of urine.	Albuminuria. (2)	Date of first discovery of albumen.	Duration of albuminuria.
1	22nd day.	Early date.	3 weeks.	Surface of body generally.	Scanty.	High at first; then smoke-coloured; finally pale.	At first, 1025, without albumen; then 1015 with albumen; when albumen disappeared, 1017.	Much.	Several days after appearance of dropsy.	Accompanied dropsy throughout, and disappeared with it.
2	28th day.	7th day.	A few days.	Face only.	Natural.	At first, high coloured; then light.	At first, 1010.	Very little.	Discovered at first examination seven days after appearance of dropsy.	Not found after first examination.
3	16th day.	10th day.	3 weeks.	Surface of body generally.	8 ounces per diem.	Dark, mud-coloured.	At first, 1010.	Not sought for.		
4	14th day.	7th day.	4 weeks.	Ditto.	2 ounces per diem.	At first, smoke-coloured; then blood-red; finally of light amber-colour.	1020, when blood red.	Much.	Ditto.	Accompanied dropsy throughout, and disappeared at same time with it.
5	Uncertain.	2nd month.	9 weeks.	Surface generally; right pleura; pericardium; left tunica vaginalis.	Scanty.	Deep amber-colour.	1080.	None found.		
6	11th day.	10th day.	3 weeks.	Surface generally; the pleura, pericardium, and abdominal cavity.	A few ounces daily.	Not recorded.	1029.	None.		

7	21st day.	2nd day.	2 weeks.	Surface generally.	Very scanty.	At first, smoke coloured; then albumen; then most colourless.	1028 at first, with albumen; then 1014, as smoke colour disappeared, and quantity increased; when urine became copious, 1005.	Considerable. Two or three drops of nitric acid produced a white cloud, which slowly sank a short way, and then disappeared. A larger quantity of acid produced a well-defined precipitate of albumen.	Two days after appearance of dropsy.	Accompanied dropsy throughout, and was last found three days after disappearance of dropsy.
8	19th day.	3rd day.	3 weeks.	Ditto.	Very scanty; scarcely any.	Almost colourless, eleven days after appearance of dropsy.	1010 at first examination, when copious after almost total suppression; then 1005, when copious, and almost colourless.	A trace.	Fifteen days after appearance of dropsy.	Transitory.
9 10	17th day. 14th day.	1st day. Ditto.	A few days. Ditto.	Face only. Face and feet.	Usual quantity. Scanty.	Not recorded. Light amber-colour.	1020. 1010.	None. Very little.	A few days after appearance of dropsy in face.	Observed only once.
11 12	23rd day. 5th week.	Ditto. 2nd day.	Ditto. Ditto.	Face only. Face and feet.	Not examined. 10 ounces per diem.	Not recorded. High coloured; like lithic acid urine.	Not recorded. 1023.	Not sought for. None.		

¹ The cases numbered 2, 7, 8, 9, 10 and 11, had been under the author's care during the primary eruptive fever.

² Albumen was sought for, but not found, in the urine of patients Nos. 7, 8, 9 and 10, during the eruptive fever, and before the appearance of effusion. The tests employed were heat and nitric acid.

sero-purulent fluid, of a green colour. The right lung was hepatized and contracted, lying alongside the vertebral column. The pericardium contained about six ounces of sero-purulent fluid. The free portion of the pericardium was of a pink-rose colour, and was covered throughout—as was also the portion investing the heart and roots of the blood-vessels—with much coagulated lymph, giving them a honeycomb appearance. Loose fibrinous bands also connected the two layers of the pericardium. The peritoneal cavity contained four ounces of sero-purulent fluid; and bands of lymph were found on the peritoneum. The kidneys were large and firm, weighing each, upwards of 2 oz.: the cortical portion was somewhat pallid. The cavity of the left tunica vaginalis testis was obliterated, except at one part, where two drachms of sero-purulent fluid were confined.¹

In case No. 6, the cellular tissue of the surface of the body was extensively infiltrated with serous fluid. An ounce of fluid was found effused in each pleural cavity, and four ounces in the pericardium. The pleuræ and pericardium appeared natural in other respects. The heart was small and flaccid, also pale and blanched, as the healthy heart would be if digested in water for some days. The peritoneum contained eight ounces of limpid serous fluid, the analysis of which will be found below. The kidneys were firm and gorged with blood; and the cortical part was of a deep brick-red colour. The weight of each was one and a half ounces. The bladder contained a few ounces of pale, clear, neutral urine.

ANALYSIS OF URINE TAKEN FROM BLADDER AFTER DEATH. ²		ANALYSIS OF SEROUS FLUID FROM ABDOMINAL CAVITY.	
Water	978 00	Water	96.6
Urea	60.92	Albumen	2.2
Hippuric acid, animal extractive, and vesical mucus . . .	1.74	Fatty and extractive matter . . .	.1
Alkaline salts	7.85	Salts, chiefly alkaline	.5
Phosphates and silica . . .	1.39	Loss	.6
Loss	.10		
	1000.00		100.0

The urine was examined after recovery, in the following cases, without detecting albumen; in No. 1, at the end of five months; in No. 2, at three months; in No. 3, at five months; in No. 7, at the end of ten months; in No. 9, at three months; and in No. 10, at five months. No examination was made in the other cases.

Varieties of anasarca.—Four varieties of anasarca were presented by the preceding cases; the presence of albuminuria, and desquamation of the cuticle, being taken as the grounds of classification.

1. Anasarca with albuminuria and desquamation; as in cases 1, 7, 8, and 10.

2. Anasarca with albuminuria, and without desquamation; as in cases 2 and 4.

3. Anasarca without albuminuria, but with desquamation; as in cases 5 and 9.

¹ Some of the particulars of this case are given in a paper, by the author, on Pericarditis following Scarlet Fever, published in the Medical Gazette, 1845.

² These analyses were made by a professional friend, on whose accuracy the author has every reason to depend.

4. Anasarca without albuminuria or desquamation; as in cases 6 and 12.

In the third and fourth varieties, albumen may have been present in the urine at an early period of the disease, in those cases which were only seen at an advanced stage; for there is evidence to show that the kidney is capable of recovering itself in a very short time, and of again secreting non-albuminous urine.

Another division of the cases of dropsical effusion may be made, into *sthenic* and *asthenic*, by taking as the basis, the state of the powers of the system. Considerable power existed in all the cases, excepting 5 and 6; these displayed great exhaustion from the time of their first coming under notice. But there is manifestly an objection to this classification, at least with respect to the above cases, which has been a favourite one with some writers. Those cases which displayed exhaustion were, when first noted, in a late stage of the disease; and again, some of the others, which indicated considerable power at the commencement, were, soon after, signalized by great debility, faintness, and enfeebled action of the heart. This classification, however, may be very useful in a therapeutical point of view.

Another division of the foregoing cases may be justified, viz., into those of *general and persistent effusion*, and into those in which it was of a *limited and transitory* character; the former being dependent on serious obstruction of the kidney, or skin, or both; the latter apparently arising from some slight excited or inflammatory action, or only very evanescent obstruction, of the kidney.

GENERAL REMARKS ON THE DROPSY OF SCARLET FEVER.

1. ITS NATURE.—The dropsy following scarlet fever is ushered in by certain symptoms indicative of excited action, such as heat of skin, furred tongue, thirst, quick pulse, and reduced secretions. In this respect it resembles the inflammatory dropsy which arises from obstructive disease of the kidney under ordinary circumstances, and differs widely from the passive dropsy originating from venous obstruction. The inflammatory symptoms in the dropsy of scarlet fever, are perhaps owing, in part, to the repletion and distension occurring primarily in the arterial system, which is more active, and more engaged in the functions of nutrition and secretion, than the venous. The fluid of the dropsy of scarlet fever, as well as that of inflammatory dropsy, is the result of exhalation or secretion; while that of chronic dropsy, from venous obstruction, or from debility, is the product of mechanical exudation or of non-absorption. Inflammatory dropsy has sometimes been styled dropsy of the left side of the heart, while chronic dropsy, from venous obstruction at the heart, has been styled dropsy of the right side. More suitable titles would perhaps be arterial dropsy for the former, and venous for the latter.

The effusion in this disease takes place first in the cellular tissue, because the arterial capillaries find there little resistance to the relief of their over-distension. The serous membranes next afford an outlet; but, from their liability to inflammation, the effusion is frequently mixed with coagulable lymph, or is sero-purulent.

Pathological causes.—The dropsy following scarlet fever does not

appear to have any essential connexion with the presence or absence of *desquamation of the cuticle*. This is proved by the occurrence of anasarca in cases 2, 4, 6, and 12, in all of which no desquamation whatever took place.

Albuminuria, likewise, is not essential to the production of the dropsy. This is proved by the occurrence of anasarca in cases 9 and 12, in which, the most careful examination failed to detect any albumen in the urine. Another proof may be derived from a reference to the relative dates of the appearance of albuminuria and of anasarca, in those cases in which albumen was discovered in the urine. In case No. 1, albumen was not discovered till several days after the appearance of anasarca; and in case No. 8, only a trace of albumen was detected, on two occasions, fifteen days after the supervention of dropsy, although repeated and careful examinations were made for the detection of that principle, from the time of the decline of the eruption, till the final recovery of the patient.

In all the cases, excepting three, there is undoubted evidence of *partial suppression of the secretion of urine*, before the appearance of anasarca, or some time after its establishment. In two of the three cases, viz., Nos. 2 and 9, the urine was of the usual quantity during the anasarca; in the third, viz., No. 11, no record of the quantity was preserved. Thus it appears, that in nine out of eleven cases, of which a memorandum had been preserved, the urine was secreted in reduced quantity; or, in other words, was retained in the circulation. The retention in the circulation of the urine which should have been excreted by the kidneys, seems to have been an essential cause of the dropsy, in each of the nine cases above referred to; in all of these, there was considerable reduction of the secretion of urine. In the two fatal cases, the quantity of urine passed during the twenty-four hours did not exceed, respectively, four ounces, and "a few ounces." In the two examples of anasarca in which the urinary secretion was of the natural quantity, and in these only, the effusion was confined to the face, and was merely ephemeral.

In order to determine whether the detention of urine in the system, be really an essential antecedent of dropsical effusions, it would be desirable to ascertain the quantity of the secretion prior to the appearance of the effusion, and not merely after its manifestation. To effect this object, considerable trouble is necessary; for it would be indispensable to examine the urine regularly for some weeks after the appearance of the eruption. It is not till the expiration of this time, that anasarca usually manifests itself. Again, as we have no means of foretelling what cases will be followed by anasarca, numerous observations, in all cases, would be unavoidably necessary. The writer is enabled to afford some evidence here,—having carefully noted the condition of the urine for some time, in two cases of scarlatina. After the cessation of the fever the urine was copious; but it then suddenly became reduced in quantity. In one case (No. 7), it assumed a muddy or smoke colour; and anasarca then appeared. In another case (No. 8), the urine was suppressed for two days; anasarca then occurred. There is some reason, therefore, to suppose, that the retention in the system of urine, which should have been voided by the kidneys, is an essential antecedent of scarlatina; at least in those cases in which the effusion becomes considerable.

It may also be rationally conjectured, that, even in cases where there is not considerable suppression of urine, a certain amount of retention of water may take place, and prove one of the necessary antecedents of the effusion. It is not unlikely, that even a small quantity of water not missed in the urine, if checked at the kidneys and retained in the circulation, when the system, and especially the skin, is unaccommodating, and unable to furnish a vicarious discharge, may give rise to partial anasarca.

This retention in the circulation of fluid, which should have been voided by the kidneys, is probably the result of disease of those organs. The kidneys become the seat of disease, at an early part of the progress of scarlet fever; sometimes within the first few days. This is proved by a very great reduction in the amount of secretion, not unfrequently observed at this period. In several cases of anasarca, it was discovered that the quantity of urine had been scanty, or very scanty, during the eruption. Besides, in some cases of scarlatina which were not followed by anasarca, the quantity of urine was reduced to a mere trifle, in the first few days of the disease. In one example, that of a girl two and a half years old, the quantity excreted did not exceed one ounce and a half *per diem*.

The condition of the secretion affords another proof of the presence of disease of the kidney, at a very early period of the eruptive disease, and long before anasarca usually appears. The colour has been found to be abnormal; the secretion in some instances being of a reddish tinge; the natural colour being exaggerated in others; while again, in a few cases, it has been observed almost colourless. More rarely it has a green tinge. The odour has been unnatural; in one case, it was sweet, like that of a sickly child's breath. Albumen was discovered on the third day of illness, in a case which terminated fatally on the fifth day. The specific gravity has been abnormal, at an early period: in some cases 1005, in others as high as 1030. It has been observed at first to rise, and then to fall, and to rise again on the appearance of dropsy. Lithate of ammonia has been abundantly deposited in many cases; and, in several specimens, nitric acid has precipitated large quantities of lithic acid. These conditions are doubtless in some measure connected with the state of the blood and digestion; yet they may reasonably be taken as evidences also of renal disease.

The early implication of the kidney in scarlet fever is indicated by the early appearance of certain symptoms; viz., urgent desire to empty the bladder, pain in the region of that organ, and other symptoms, which, it is reasonable to suppose, arise from retention in the circulation, through defective action of the kidneys, of the urinary constituents. Arthritic pains are very often noticed. The *low specific gravity* of the serum of the blood, viz., 1025, in two examples of scarlet fever, may be held to countenance the idea that the kidney is early implicated.

Examination after death has likewise contributed its evidence, to show that the kidney is liable to be early implicated in scarlet fever. The writer unfortunately has not had many opportunities of seeing *post mortem* examinations in cases of scarlet fever, in an early stage of the disease. One patient, however, died on the fifth day of the disease and before the eruption had declined. Death was caused by head affec-

tion, occurring suddenly with convulsions. The body was examined. The left kidney was larger than the right. It was congested to a great extent. When incised, the colour was found deeper than natural, and much blood poured out from every part of the cut surfaces. The papillæ were exaggerated. The right kidney was normal, and this opportunely afforded the means of contrasting it with the diseased organ.

The affection of the kidney in the early stage of the disease appears to be part and parcel of the malady. It is to the kidney what the eruption is to the skin, or what the diffused inflammation and the white patchy exudations are to the fauces. The kidney, in scarlet fever, is destined to suffer a share of this zymotic disease, as well as other parts of the body. The virus of the disease seems to seek the kidney as well as the skin. It is the very nature of the disease for the kidney to suffer. The nature of the affection of the kidney at the early stage of the disease is analogous to that of the skin. It is the peculiar action of the disease. It is probably, in most cases, short of inflammation, but marked as in the case of the skin, with active congestion, increase of the supply of blood, and of general vitality.

When the implication of the kidney is great and the congestion extensive, we have a reduction of the quantity of urine; it also becomes altered, is rarely pale, and of low specific gravity; at other times, high coloured, turbid, and of high specific gravity.

After a time, the congestion remaining, and certain conditions existing favourable to this result, albumen is secreted with the urine, or the red globules of the blood may likewise pass away. The kidney becomes unable to eliminate urea, and that poisonous principle is retained in the blood. The affection of the kidney may decline before anasarca takes place, before the secretion of the kidney is materially reduced, or before albumen or blood appear in the urine.

The kidney, there is reason to believe, may escape implication altogether, in some cases, in the same way that the skin is occasionally not visited by the eruption, or that the fauces remain healthy.

It is well known that, in some epidemics, there exists a greater liability to the affection of the kidney, than in others; and this will explain the more frequent occurrence of dropsy in one visitation than in another.

The excessive formation of epithelium appears to be one of the modes, by which the affection of the kidney causes a suppression of the urine.

It appears, that in many cases, the kidney regains its health after the subsidence of the primary fever; but after a period of repose more or less prolonged, that organ rises into morbid activity again, becomes now the seat of still more active congestion, perhaps of inflammation, and gives rise to a scanty, an albuminous, or a sanguineous secretion, and the excessive formation of epithelium scales, a process analogous to the desquamation at the surface, and thus produces dropsy at a late period. Such appears to be the case, if we may judge from the progress of the symptoms and the examination of the secreted fluid.

This renewed activity, is analogous to the renewed activity which is generally observed in the skin. After the decline of the eruption,

the skin becomes moist, or slightly scurfy, and after having regained its apparently healthy condition, it has frequently, in the experience of the writer, become the seat of great activity, of heat, of dryness, of extraordinary desquamation, repeated again and again, over two, and three, and even four weeks. This excessive action both of the kidney and the skin, is similar to what occurs in some other diseases, and may be regarded as analogous, in some respects, to the glandular swellings after fever, and the inflammatory symptoms after the collapse of cholera.

When the suppressive affection of the kidney is considerable, and does not give way very soon, the circulation will relieve itself, if death do not occur in the meantime, either by throwing some of its superfluous water into the cellular structure, or into the serous cavities, or omit to take up again the normal secretions of those parts,—and thus give rise to dropsy in one or other of its shapes. When the affection is slight, a balance may be maintained for a time, by vicarious exhalation at an open surface, by the skin, the mucous membrane of the bowels, or by the lungs; and dropsy may be thus avoided.

When the skin is blocked up at the same time, in consequence of extensive desquamation, the chances of a balance being maintained without the occurrence of dropsy are materially reduced; and this is one of the reasons that anasarca has been noticed in a large proportion of cases marked by extensive desquamation.

Desquamation, when extensive and repeated, favours the induction of dropsy in two ways. By obstructing the perspiration and exhalation of the skin, a more than usually large quantity of fluid is thrown upon the kidney for elimination, and the kidney has thus its chances of suffering disease materially increased, or of having a slightly obstructive disease raised into a highly obstructive one. Again, no accommodation, however temporary, is given by the skin, to the suffering kidney. The superfluous water of the circulation obtaining no outlet, either at the interior or the exterior of the body, dropsy is more likely to take place. This appears to be the relation of desquamation to anasarca.

The presence of albumen in the urine, as before remarked, does not appear to be an essential antecedent of anasarca. In some cases of dropsy, it was not to be found at all. Albuminuria is only a consequence, among others, of that condition of the kidney which gives rise to the suppression of the urine, the essential cause, or one of the essential causes, of general dropsy. Albuminuria is sometimes found when the dropsy is very slight; and it is not to be recognized in some cases of great severity. It is not always a good criterion of the extent of the disease of the kidney; and it may not show itself until the disease is in its latter stages, or actually upon the wane.

Two cases of anasarca of the face occurred, in which the urine was secreted in the usual quantity. It is necessary, therefore, to look for another cause of the affection, besides the suppression of the urine, or to regard the œdema as different from the anasarca in the other cases. The œdema was coexistent with slight general inflammatory symptoms; in one case there had been slight desquamation of the face, and in the other, extensive and repeated desquamation of the whole surface. In the first case, there could be no retention of an aqueous secretion to any extent; but there had been inflammatory symptoms. In this case,

the cause of the œdema was, probably, a slight inflammatory action of the subcutaneous cellular tissue. In the second case, the cause was, probably, the same, induced or aggravated by the suppressed exhalation by the skin. It is possible that obstructive disease of the kidney might have been present in these cases, but to an extent so slight as not to be appreciable on a cursory examination, yet sufficient to induce partial œdema.

The disease of the kidney occurring after scarlet fever, and connected with anasarca, has been thought by some observers to form the foundation of organic alteration, and to lead to those changes which are associated under the head of Bright's kidney. There is some reason to believe that this opinion is well founded; but fresh observations are required to settle the point in a satisfactory manner. On the other hand, in most examples of anasarca, the kidney appears to regain its healthy condition, if we may judge by the perfect health of the patient for years after, and from the natural condition of the urine. The urine of six of the twelve patients was examined some months after recovery. No albumen was found in any one specimen; and no other pathological character was discovered.

In the experience of the author, the examples of the eruptive disease which are most liable to be followed by anasarca, are marked by smart inflammatory fever, not very violent, and general vivid persistent eruption, or repressed eruption, moderate inflammation of the fauces, persistent desquamation, and scanty, turbid, high-coloured urine, sometimes of a reddish tinge. It is in somewhat analogous and moderate cases of fever, that Peyer's glands are most frequently implicated.

The examples of the disease least liable to be followed by dropsy, are those in which the type of the fever is asthenic, and in which local disease of serious import manifests itself in some part distinct from the kidney. In severe cases of sloughing of the fauces, or of great swelling in the parotid and submaxillary glands, the writer has never found anasarca to follow. Prostrated powers of life, typhoid symptoms, and draining or exhausting diseases in other parts, seem to be unfavourable to the developement of serious implication of the kidney. The very mitigated cases of scarlet fever, in the experience of the writer, have been altogether exempt from dropsy. The only member of the family of the patients Cook, who had scarlet fever in a very mitigated form, so as to be scarcely made out, was the only one who did not suffer from dropsy; and the same observation is applicable to the family of the patients Ford.

The general condition of the system which seems to afford the greatest liability to dropsy, is that of considerable power. A constipated condition of bowels appears to favour the advent of the disease.

PHYSIOLOGICAL CAUSES.—Members of the same family display a liability to be similarly affected, in many diseases. It is so in respect to disease of the kidney after scarlet fever. Six of the twelve patients were brothers and sisters in three different families. Calculations have proved to the writer that a child, labouring under scarlet fever, who has a brother or sister affected with anasarca depending on disease of the kidney, has double the chance of being affected with the same evil, that falls to

the lot of another whose brothers and sisters have not suffered in that way from scarlet fever. The female constitution, in the experience of the writer, has not shown any of that greater affinity for the disease, over the male, advanced by some writers.

The comparative activity of the kidney at the early periods of life, serves to increase the risk of disease of that organ in children. The quantity of urea secreted by children is proportionally much higher than that of persons advanced in years. A child of eight years secretes nearly twice as much urea as a man of eighty-four years. This greater amount of labour on the part of the kidney, not only enhances the risk of disease, but makes that disease, when established, greatly more dangerous.

PHYSICAL CAUSES.—The external circumstances which have most favoured the development of anasarca, have been cold and sudden alterations of temperature, particularly from warmth to cold. It is in the evidence of many writers, that this has been a common prelude to the disease; and to accept it as an auxiliary or occasional cause, is consonant with sound pathological principles.

Yet it appears that cold has been too generally and too absolutely put down as the cause of anasarca. It has been already shown, that there is some evidence to prove, that the kidney, by a law of the disease, is liable to be early affected, and that the affection is analogous to that of the skin. If such be the case, it is not fair to regard cold as an absolute cause. Doubtless it may, and does, favour and aggravate the disease, but it can no more be said to be the cause of the renal implication, than cold can be said to be the cause of the affection of the fauces, because it may, and does, favour and aggravate it; or heat can be said to be the cause of the eruption of the skin, which it is known to promote and increase. Under the greatest care, and under the best management, with a strict regard to the scrupulous exclusion of cold, anasarca has made its appearance, in the experience of the writer; and he is desirous of having it understood, that this disease is, as it were, in some cases, a natural consequence of scarlet fever, and cannot be prevented in every instance, by the best possible known management:—it should be understood, that the appearance of anasarca is not necessarily owing to the mismanagement of the medical attendant or the negligence of parents and nurses, but is rather to be regarded as the result of a natural tendency of the eruptive disease, of course more or less under the influence of good management.

Insufficient dieting and impure air, if they cannot be regarded as among the exciting causes of the dropsy of scarlet fever, have materially added to its danger, and rendered the hapless sufferers from them less able to contend with the disease. By lowering the general vitality, these evils have shortened the opportunity of overcoming the tendency of the disease to death by syncope, and reduced the chance of the kidney regaining its healthy action.

That condition of things which the author has been in the habit of grouping together, under the title of General Sanitary Condition, has decidedly influenced the manifestation of the dropsy of scarlet fever. Where that has been undoubtedly low, there the proportion of cases has been unequivocally greater, than when the General Sanitary Con-

dition has been high. And it is for this reason, in part, that the lower classes of the population suffer from this disease to a greater extent than the upper.

THE TREATMENT OF DROPSY.—A careful observation of the cases of anasarca, which have been given above, has led the writer to the conclusion, that such cases will seldom bear general blood-letting and very lowering practice. In this respect, these cases differ very much from the examples of the same disease, which he frequently met with amongst the children of the country people of Haddingtonshire, when he practised in that quarter. There the disease was successfully treated by moderate general blood-letting and other lowering practice. However, general blood-letting is justifiable, where the powers of life are great, and serious local inflammation is threatened. For the cases of partial œdema, a smart purgative, with confinement to bed, will in general suffice.

For those cases of general dropsy, in which the powers of life are considerable, in which the circulation is excited, and the kidneys are obviously congested, the perspiration of the skin is to be early secured, the bowels are to be purged, and blood is to be taken from the loins by leeches or cupping. The value of free evacuations from the alimentary canal, was well illustrated in one severe case of general dropsy. Severe vomiting and purging occurred, and though the urinary secretion did not increase but remained exceedingly scanty, the anasarca visibly declined.

When the disease of the kidney remains obstinate, and the strength will permit, a seton in the loins will form a most useful drain, and successfully relieve the overloaded and overpowered kidney. The permanent fomentation, of flannel wrung out of hot water, the large bran poultice, or what is as useful and more readily procured,—the wash-leather saturated with hot water, or the recent valuable invention, the spongio-piline, applied for some hours round the body at the loins, will prove very useful. These applications, with the exception of the spongio-piline, must be covered with plenty of dry warm flannel to prevent their becoming cool.

The examples of the disease, which are associated with defective general power, whether from original defect of constitution, from privation, or from the exhausting effects of the eruptive disease, demand supporting practice. Whilst the secretions are moderately encouraged, it will, in many cases, be necessary to give wine, vegetable tonics, and iron. The potassio-tartrate and the iodide are the best preparations of iron. The spirits of nitrous æther prove serviceable. Special symptoms will demand special treatment. A nourishing diet is indispensable. In the treatment of some of the cases related in this paper, vegetable tonics were first used, then followed iron, and this plan proved highly serviceable. It will be prudent practice not to be very heroic in the treatment of the disease,—not to tax the powers of life more than appears absolutely necessary for the present emergency,—for cases of anasarca, which have commenced with a display of considerable strength on the part of the patient, have been, in the course of a few short days, marked with great exhaustion, weakness of the heart, almost imperceptible pulse, and syncope.

The employment of diuretics demands discretion. They were not found to be very useful in some of the twelve cases. The secretion has remained almost suppressed, notwithstanding their employment, and again the urine has been remarked to become abundant, pale, and almost colourless, in some instances when they have not been exhibited.

The abatement of the kidney-disease and the return of the natural condition of the vital powers of that organ, are the only true and safe basis on which to rest our hopes of permanent relief, and it does not appear that some of the medicines called diuretics, are pre-eminently calculated to effect these objects. On the contrary, the writer has reason to believe, that some of the more stimulating are calculated, in cases of active congestion, to do much harm, by aggravating the local malady, and he has seen evil to result from their employment. When administered, the milder diuretics should be selected, and their effects carefully noted. When the renal affection has somewhat subsided, the author has found most advantage to proceed from the use of the spirits of nitre, the iodide of potassium, and the alkaline diuretics. In all cases it will be safe and judicious practice to commence with small doses.

Scarifications of the integument, when the cellular tissue remains much infiltrated with serous fluid, will often give relief. They will reduce both the water and the poisonous materials denied an outlet by the kidney. The risk of sloughing will be rendered trifling by the application of a mild ointment to the neighbouring integument, for its defence against the oozing discharge, and against wet or harsh dressings: wash-leather will imbibe the liquid as effectually as linen, and will be less unkind to the sensitive skin. This practice will give relief in the meantime, and afford time for the abatement of the renal disease.

The diet, during the dropsy of scarlet fever, should be carefully regulated. All unnecessary consumption of azotized food should be avoided. The obstruction of the chief emunctory for azotized materials, obviously indicates this precaution.

PREVENTION OF DROPSY.¹—The occurrence of anasarca will be least liable to occur where means are adopted in an efficient manner to promote the full development of the eruption on the surface; to secure a perspiring condition of the skin during the eruption, and after the decline; to prevent congestion of the kidney; and to secure the free flow of the secretions of the liver and alimentary canal.

The full development of the eruption of the skin will be best secured by confinement to bed during the eruptive period, and for some time after; and this should be insisted on, even in those cases marked by the

¹ The prophylaxis of scarlet fever is a subject worthy of attention. The induction of what may be called the belladonna disease, has been proposed as a preventive of scarlet fever. But is not this a spurious imitation only of Jenner's preventive of small pox? It seems to be founded upon false and superficial philosophy,—if philosophy it can indeed be called. The cow pox is a zymotic disease, like small pox itself. It resembles small-pox in its external character, and like small pox, as a general rule, is liable to occur only once in a life time. But these relations do not hold with the belladonna disease and scarlet fever. Scarlet fever is a zymotic disease; belladonna is not a zymotic disease. Notwithstanding the similarity in the colour and in the locale of the two diseases, they are essentially different in their characters. Scarlet fever rarely occurs more than once in a life time; the belladonna disease may be reproduced at pleasure.

The discovery of some mild allied zymotic disease, which shall prevent the occurrence of

utmost mildness, which is no guarantee that evil will not arise. The maintenance of due warmth,—not of exciting heat,—by a sufficiency of bed clothes, is indispensable; and a moderate determination to the skin is well promoted by the liberal use of warm non-stimulating diluent drinks.

A perspiring condition of the skin, both during and after the eruption, will be materially promoted by the same diluent warm drinks, recommended for the fulfilling of the first indication. The employment of the warm bath will be useful. The writer has been in the habit of ordering it every night during the eruption, and he has reason to believe that it has been serviceable. He must, however, confess that it has not proved, in his experience, the absolute preventive which some writers have reported it to be, in theirs. In cases No. 7, and No. 8, both of general dropsy, the bath was used every night with every possible care to insure its efficient operation. During desquamation, it would perhaps be well to employ the bath night and morning, proportioning the time of immersion to the strength of the patient; and it is not unlikely that its beneficial operation would be increased by the employment of soap, which would assist in the removal of the excessive epithelium. The bath, it may be well to remark, can be useful or safe, only where due subsequent warmth can be secured, and where proper attention can be paid to the drying of the patient.

The congestion of the kidney will meet with some hindrance from the employment of those means, which are recommended for fulfilling the two first indications. A lax condition of the bowels, giving two or three liquid stools in the day, will go far to reduce the chances of inordinate or dangerous congestion of the kidney. The avoidance of stimulating diuretics, or other medicines or cordials which have a tendency to the kidney, will prove a bar likewise to the occurrence of the apprehended evil.

The promotion of the secretions of the liver and alimentary canal, is readily effected by very safe means. Small doses of mercurials, such as calomel, or mercury with chalk, will, when indicated, secure the secretion of the bile. Purgatives or laxatives, according to circumstances, will secure the secretions from the alimentary canal. Their moderate administration, under ordinary circumstances, during the whole period of the eruptive disease, is perfectly safe. The saline purgatives are to be employed with some caution. In being liable to be taken into the circulation they may irritate the kidney; and if obstructed in their passage by that outlet, and retained in the body, they may prove injurious. Castor oil, senna, rhubarb, jalap, and scammony, are perhaps the safest. Where a strong purgative is necessary (which will be seldom), croton oil may be given.

In addition to these indications for the prevention of disease of the kidney, perhaps another may be suggested, viz, the abatement of that persistent and general desquamation of the cuticle (really a disease of morbid activity or growth), which seems actively to favour the develop-

scarlet fever, as cow pox prevents small pox, is perfectly feasible, and should lead to active investigation. Inoculation for scarlet fever is too dangerous to be adopted, at all events, according to the limited observations on record. Possibly a milder disease might be produced, by the transfer of the virus to some of the lower animals; and re-inoculation successfully practised upon the human subject.

ment of disease of the kidney. The writer is not aware of any means which have been used for the cure of this hypergeny of the cuticle; but it is not unlikely, that the remedies successfully employed in the constitutional squamous diseases would be useful. Slight mercurial alteratives and purgatives would be worthy of trial. Under ordinary circumstances, they would at least be harmless.

It would be a rule fraught with much safety to the kidney and security against anasarca, to insist on every sufferer from scarlet fever, however mild the disease, remaining strictly in bed during the eruption, and for several days after its decline; and to keep the patient within doors for three or four weeks from the time of the commencement of the eruptive disease. By such a rule, many attacks of anasarca would be prevented, and not a few lives saved. It is true this would be effected at the cost of some tedium and irksomeness; but the result would warrant the outlay. Perhaps, in the course of time, observation will enable us to pronounce who are, and who are not, likely to suffer, and to select with accuracy the former only, as requiring prolonged confinement. In the meantime, however, no such selection can be made; and to prevent danger, all should be subjected to increased vigilance.

80 Park street, Grosvenor-square, January 1849.

BIBLIOGRAPHICAL RECORD.

ON CANCEROUS AND CANCROID GROWTHS. By JOHN HUGHES BENNETT, M.D., F.R.S.E., Professor of the Institutes of Medicine, and one of the Professors of Clinical Medicine in the University of Edinburgh. Pp. 200. Edinburgh: 1849.

This work is divided into two parts. The first of these is composed of a record of fifty-six cases of Cancerous and Cancroid Diseases, comprising a history of the symptoms of the disease during life in each; the physical appearance of the morbid parts when removed after death, as observed by the unaided eye; and an account of their microscopical examination, accompanied by short commentaries, to point out the facts of interest contained in each particular case. We may here observe, that the author applies the term "Cancroid," as Lebert has done, to those diseased structures which resemble the cancerous so closely, when examined by the unaided eye, that they are frequently mistaken for them; yet are found to differ essentially from them when examined by the microscope. The important feature in the account of these fifty-six cases of Cancerous and Cancroid Diseases, and which constitutes the chief value of the book, is the minute account of the microscopic examination of the diseased growths, and the numerous excellent representations of their structure, drawn by the author himself from the objects, while under microscopic examination, and copied by him on wood, to secure accuracy in their pictorial illustration. These microscopic examinations seem to have been made with exemplary care, and with the best endeavours to secure correctness; and we are told by the author (p. 4), that he spent three entire days in the microscopic examination, and in making numerous drawings—selections from which have been cut on wood—of the diseased structures of one of the cases he records.

We believe that there can be little doubt that the most experienced surgeons, who trust to the unaided eye alone in determining the nature of morbid growths, not unfrequently class diseased structures together, which the microscope proves to be essentially different, and separate those whose intimate structure is alike; and that this is one of the chief causes of the discrepant accounts given by surgeons of the history of such diseases. Examples of the manner in which such mistakes arise, are given in Cases II and XXXII. In the former, a tumour (removed by operation) was proved, by microscopic examination, to be cancerous; though all those who examined it by the unaided eye considered it to be simply fibrous. And in the latter, the microscope disclosed a tumour to be composed of tubercular matter, though it was first supposed, by all who saw it, to be cancerous. Of the importance of calling in the aid of the microscope in determining the nature of morbid growths, and obtaining more accurate knowledge of them than we as yet possess, or are capable of attaining without it, no one who has even cursorily attended to the subject can, for an instant, doubt.

The profession is therefore much indebted to Dr. Bennett for supplying it with many valuable data for building up a more correct knowledge of the morbid growths classed under the names of Cancerous and Cancroid; for though, as he is well aware, his labours "fall far short of what is required to complete our knowledge of Cancer," and "that much greater research, than has hitherto been employed, is necessary before we can arrive at even glimmerings of the truth respecting it" (p. 137); yet, like a few others, to whose labours we shall have occasion to refer as we proceed, he has advanced in the right direction, and has furnished a goodly share of the materials requisite for

clearing up many points in the history and treatment of such diseases, which it is apparently within our reach to attain. And it is to be hoped, that those who have the opportunity and the means of adding additional materials, will feel it their duty to continue the good work. Though the author, as might have been expected, entertains a very high idea of the value of the microscope in such inquiries, yet he is not disposed, as so frequently happens under similar circumstances, to overrate—at least, to any great extent—its capabilities, and to endeavour to depreciate the other methods employed in the recognition of morbid growths. In the preface he says: “The author thinks it right to state here, what he has endeavoured to inculcate in the body of the work, that the microscope *alone*—that is, independently of all other kind of observation—can seldom determine, in the living subject, the presence or absence of Cancer. At the same time, he feels himself bound emphatically to declare, that he thinks it capable of being as serviceable to the surgeon, in cases of morbid growth, as the stethoscope is to the physician in cases of diseased heart or lungs. Neither instrument is infallible; both require to be studied in an especial manner; both demand long practical experience, and judicious reasoning powers; and both require to be conjoined with all the aids to be derived from other modes of observation,” etc. And at page 221, he remarks: “The only physical proof we can arrive at of the existence of Cancer, is by means of the microscope,—not that this instrument is, in itself, capable, even in the most expert hands, of doing anything; but, conjoined with a knowledge of the symptoms, progress of the case, form and appearance of the morbid growth, it offers us an additional and most valuable means of prosecuting our inquiries.”

At pages 1 and 2, are to be found directions for examining morbid growths, which it would be well for those who may wish to engage practically in such researches, to acquaint themselves with, as they will furnish the beginner with information on several points of manipulation, and modes of procedure, which he could only make out for himself after much loss of valuable time.

The second part of this work consists of a systematic account of Cancerous and Cancroid Growths, which, the author tells us, is partly founded on his own observations, and partly on those of other writers, but more especially of J. MÜLLER, GLUGE, WALSH, LEBERT, VOGEL, SÉDILLOT, ROKITANSKI, ENGEL, GUNSBURG, BRUCH, and VIRCHOW, to whose works, nearly all that is known on the true structure and pathology of Cancer may be said to be confined.

This systematic account of Cancerous and Cancroid Growths is arranged under the following heads: 1. Histology; 2. Chemical Composition; 3. General Anatomy; 4. General Pathology; 5. Statistics; 6. Diagnosis; 7. Prognosis; and, 8. Rational Treatment.

HISTOLOGY.—The different morbid structures included under Cancerous and Cancroid Diseases, are composed, according to Dr. Bennett, of the following elementary forms: 1. Molecules and Granules; 2. Naked Nuclei; 3. Cells of various kinds; 4. Filaments or Fibres; 5. Blood-vessels; 6. Crystals. The distinction between *Molecule* and *Granule* is one only of size, and rests upon the quality of the microscope employed. The minute particles are termed molecules when they present no defined external edge; while granules have a defined margin, and are generally of a spheroidal or elliptical form. These molecules and granules are among the most common elements of morbid growths, and are diffused through a blastema, or substance, out of which all the elementary tissues found in morbid growths may be said to be formed, and which is at first poured out in a fluid form, but may afterwards assume various degrees of consistence between fluid and solid. The *Naked Nuclei* seemed to be formed by the fusion and combination of the molecules and granules. The elementary forms already mentioned—viz. molecules, granules, and nuclei—are not only found free in the blastema, but in the interior of certain minute spherical bodies, termed Cells. According to Dr. Walshe (*The*

Nature and Treatment of Cancer, pp. 57-8): "The diameter of the nucleus of Cancer-cells varies between 1-3500 and 1-3000 of an inch, averaging 1-3200 of an inch. The larger are generally to be seen in the cells of encephaloid, the smaller in those of scirrhus growths. The nucleus is relatively larger in young cells. The nucleus contains, in its interior form, one to four clearly defined bodies, the nucleoli,—themselves probably containing within them sub-nucleoli; but such corpuscles are not visible with a power of 400 diameters." The different kinds of Cell, enumerated by Dr. Bennett as occurring in Cancerous and Canceroid Growths, are the following: 1. the Cancer-cell; 2. Epithelial cell; 3. Cartilage cell; 4. Compound granular cell; 5. Fibro-plastic and fusiform cell; 6. Pus cell. These appellations, he admits, are open to objection; but he says he has none better to offer.

Cancer-Cell.—The form of cell which has received this name, presents very various appearances. In form, these cells may be round, oval, caudate, spindle-shaped, oblong, square, heart-shaped, or of various indefinite forms, from pressure on their walls. In size they vary from 1-100th to the 1-10th of a millimetre in diameter. The former size only occurs in an early stage of their development; the latter, when they are old, and contain in their interior other cells. Their average size is from the 1-50th to the 1-30th of a millimetre in diameter. They are destitute of colour, except in melanotic Cancer. The contents of these cells are various. In each there is always one nucleus, often two, and sometimes in various numbers, from three to nine. Generally, however, there is only one nucleus, which varies in size, and is round or oval,—more frequently the latter,—and contains one or two granules or nucleoli. In the interior of the cell there is also a colourless fluid, which is, at first, transparent, but afterwards becomes opalescent, from the presence of molecules and granules. Contrary to the opinion of some other observers, Dr. Bennett maintains that Cancer-cells are never developed into fibres. He says that they may become caudate, elongated, and throw out pointed prolongations; but that they do not split into filaments, and that it is probable that those who have described their development into fibres, have mistaken fusiform, or epithelial, cells for these.

Epithelial Cells.—Certain morbid growths, reputed cancerous, were found by Lebert to be composed of cells similar to those of the epidermis or epithelium; and also constituting such epidermic growths as corns and warts. When epithelial cells constitute the principal part of a morbid growth, they become greatly compressed together; the external ones presenting a series of superimposed laminae, while the deeper are round, oval, spindle-shaped, or more or less altered in form from pressure, and are sometimes united into a firm growth by compression, or by filaments of areolar tissue, p. 150. We do not think that the term epithelial cell is well chosen; for there can be no doubt that some, at least, if not all, of the epithelial canceroid growths described by Dr. Bennett, are composed of cells, which, howsoever closely they may resemble the ordinary epithelial cells of the mucous membranes histologically, show, by the course which they run, that they must differ from them physiologically, or in their vital actions. A growth composed of epithelial cells would not, as far as we know, reproduce itself in the lymphatic glands in the course of the lymphatic vessels leading from it; as may occur in chimney-sweep's cancer, and certain growths on the tongue, ranged by Dr. Bennett under the epithelial growths. *Epithelioid* would, we suggest, be a better appellation for these cells. At all events, it is clear, that they are not *epithelial*.

Cartilage Cell.—The cells in morbid cartilaginous growths are large, and, as stated by Müller, more resemble those in the tissues of the embryo, than in those of the adult. These cells, so named from their resemblance to the cells in normal cartilage, are found in enchondromatous growths.

Fibro-plastic and Fusiform Cell.—Under the term "fibro-plastic," Lebert describes a peculiar round or oval corpuscle, with a small nucleus, which has a tendency to elongate at both extremities, and to become transformed

into fibres. These bodies are met with in all stages of their development in Cancerous and Cancroid Growths, but also very often in anormal tissues, which have no tendency to undergo the cancerous degeneration. Dr. Bennett has observed fibro-plastic corpuscles, some of which had split up into fibres, in ordinary inflammatory effusions. The caudate cells, one form of the fibro-plastic element, frequently abound in cancerous tumours, especially in medullary cancer, but we have seen that they may also exist in non-carcinomatous growths.

Compound Granular Cell.—This form of cell also presents itself in ordinary inflammatory effusions, and has been described by pathologists under the designations of "inflammation globule," "granular cell," and "exudation corpuscle." It is also common in every kind of Cancerous and Cancroid Growths.

Pus Cell.—The pus cells found in Cancerous and Cancroid Growths do not differ from those in the puriform effusions of ordinary inflammations.

Filaments and Fibres.—Filaments and fibres generally form the basis of both Cancerous and Cancroid Growths; but these do not differ from the fibrous tissue existing in normal textures, either in their nature or development, at least as far as our present knowledge goes. Sometimes these filaments are very delicate; at other times they resemble those in the elastic tissues, and may be so closely set together, as to be separated with difficulty by the needle. They sometimes run side by side in wavy bands, or are interwoven together; at other times they are arranged so as to form loculi, or large interstices. The consistence of Cancerous and Cancroid Growths, must, as can readily be imagined, depend in a great measure upon the relative proportion of the fibrous and cellular elements.

Blood-vessels are more or less abundant in Cancerous and Cancroid Growths. Not long ago, much importance was generally attached to the arrangement of the blood-vessels in morbid growths; but since so much light has been thrown upon the development of the tissues, both normal and morbid, by the researches of Schwann and his followers, it has been shown that the blood-vessels merely serve the purpose of carrying the blood, from which the tissues, both normal and morbid, derive the materials capable of being appropriated by them for their nutriment. Müller says (*Observations on the Minute Structure of Morbid Growths*, p. 14), "that fine injections are by no means well suited to display the minute texture of morbid growths. Indeed, with the exception of aneurism by anastomosis, these growths present no remarkable arrangement of vessels, and, consequently, no peculiarity which injections could render more distinct; while they have the disadvantage of concealing important forms of structure, such as may be satisfactorily studied by means of the microscope in fresh specimens, or even in such as have been kept for some time in alcohol."

The CHEMISTRY of Cancerous and Cancroid Growths throws no light upon their peculiar vital properties. They are composed of the same chemical proximate principles as other exudations from the blood, which become organized; so that it is impossible to distinguish them chemically from other morbid products, or even from the healthy tissues. The chemical constituents of Cancerous and Cancroid Growths may be divided into four groups. 1. Albuminous principles. 2. Fatty principles. 3. Mineral principles. 4. Pigmentary principles. Müller (*Opus cit.*, p. 10) has divided cancerous growths, yielding much of the albuminous principles, into two groups. 1st. Those which, by long boiling, are reduced almost entirely to gelatine, such as the cellulo-fibrous tumour, the tumor fibrosus, *seu* desmoides, enchondroma, and the ostoid tumour. All these tumours, it may be remarked, would be classed by Dr. Bennett among the canceroid. 2nd. Those which do not yield gelatine after long boiling, but which are chiefly composed of albumen.

In all probability, all morbid growths are formed in this way:—a fluid, which we term *blastema*, is poured out from the blood into the tissue where

the morbid growth is about to be formed. In this blastema, granules and molecules present themselves, and these become fused or collected together into nuclei. Out of, or upon, these nuclei, cells are formed. These cells may become changed into filaments or fibres, or they may, during the whole of their existence, retain the cellular form. New cells may be generated in the interior of those already formed, by the agency of the nuclei and the nucleoli, so that two or more new cells may be perceived in the interior of the older cells; and as these new cells increase, they fill up the interior of the old cells, and cause the absorption or the rupture of their walls. While new cells are thus generated in the interior of the old cells, others may be forming in the surrounding blastema. It would also appear, that fibres may also be formed by the molecules and granules of the blastema arranging themselves in lines. We thus perceive that there is a strict resemblance between the development of healthy and morbid tissues. Each cell has an independent life; and may live and form new cells, altogether independent of those with which it is associated, as long as it can derive nutritious matters from the blood. From this we may understand the sometimes very rapid increase of those morbid growths composed of cells, and the almost certainty of their reproduction, if, in their extirpation, any portion, however minute, of them be left.

GENERAL ANATOMY OF CANCEROUS AND CANCROID GROWTHS.—These growths are formed by a combination of the elementary tissues mentioned above. As these elementary tissues are intermixed in various proportions, forming growths which differ considerably in their physical properties, when examined by the unaided eye, various classifications of these have been proposed. Dr. Bennett agrees with Dr. Walshe in arranging all cancerous growths under three forms; namely, schirrhous, or hard; encephaloma, or soft; and colloid, or jelly-like, Cancer. The other forms enumerated by morbid anatomists may be classed under these three. As cancerous growths essentially consist of cells, fibres, and a viscid fluid, the relative proportion of these three determines their peculiar form. "If the fibrous element be in excess, it constitutes schirrhous, or hard Cancer; if the cells be numerous, encephaloma, or soft Cancer; and if the fluid abound, and be collected into loculi or little cysts, it is colloid Cancer." Various modifications of the encephaloma, or soft Cancer, have received well known designations. When the blood-vessels give way, and blood is effused into parts of an encephaloma, the growth is then termed *fungus hamatodes*. When fatty degenerations of portions of an encephaloma occur, and assume a reticulated form, it has received the name of *Cancer reticulare*. When a dark pigment is infiltrated among the cancerous elements, or is collected in the interior of the cells, the tumour then constitutes the *malignant melanosis* or *melanic Cancer* of authors. We may here remark that Dr. Walshe states, in the article (*Products, adventitious*), in the *Cyclopedia of Anatomy and Physiology*, pp. 137-8, among other reasons in proof of the statement, that a constant and unfailing microscopical characteristic of Cancer has hitherto been vainly sought for, that "a tumour may present to the naked eye the characters of encephaloid, be the seat of interstitial hæmorrhage, affect the communicating lymphatic glands, run in all respects the course of Cancer,—and, nevertheless, contain no cells but such as are undistinguishable, in the present state of knowledge, from common exudation cells." Dr. Walshe farther adds, "In ultimate analysis, the *single* character least likely to deceive is this:—if a tumour be cancerous, it will yield, on pressure, an opaque, whitish (milky or creamy-looking), albuminous fluid; if it be not cancerous, it will not yield a fluid of these qualities." The distinction between Cancerous and Cancroid Growths has hitherto not been sufficiently attended to; and Dr. Bennett especially dwells upon this point in various parts of his work, and points out that our knowledge of these affections must be vague and fluctuating, as long as they are mixed up together. He classes the Cancroid Growths as follows. 1. Fibro-nucleated cancroid growths. 2. Epithelial cancroid

growths. 3. Fibrous canceroid growths. The third or last division contains the following sub-divisions. *a.* Sarcomatous tumours. *b.* Desmoid fibrous tumours. *c.* Chondroid fibrous tumours. *d.* Neuromatous fibrous tumours. 4. Cartilaginous canceroid growths. 5. Fatty canceroid growths. 6. Canceroid tubercular growths. These different forms of canceroid growths are shortly described, and illustrative drawings of their elementary constituent tissues are given. As it is impossible to convey anything like a clear or definite account of these various tumours, within the limits allotted to our Bibliographical Record, we must refer our readers to the work itself.

GENERAL PATHOLOGY.—This chapter discusses our knowledge regarding the origin, progress, and decline of these growths. We have observed nothing in the account of the origin of these tumours which need be here noticed. Under the head "Degeneration" (p. 210), it is stated that "the progress of a cancerous growth may receive a check, from the cells, which are the entire agents of growth, being rendered abortive, and the result may be—1, a fibrous cicatrix ; 2, a fatty mass ; or 3, a calcareous concretion." In proof of the possibility of the first method of cure, or, as it is here termed, degeneration, he refers to several cases of cancerous ulcers collected by Dr. Walshe, where the cancerous cells became gradually less in number, whilst the fibrous elements increased, and terminated in the production of a cicatrix. He also refers to a memoir, published in 1845, by Professor BOCHDALEK of Prague, *On the Healing Process of Cancer in the Liver*, in favour of the opinion, that cancerous tumours in the liver may become softened and disappear, and their place be occupied by a cicatrix. Proofs are also given of the occasional deposition of fatty matters and earthy salts in cancerous tumours, in such quantities as to completely occupy the whole morbid mass, and thus arrest its progress. At p. 215 it is stated, "I have thus endeavoured to show, that a cancerous growth does not necessarily proceed to a fatal termination, but that, like all other forms of exudation, after passing through its natural stage of growth, it may occasionally be transformed into a substance which will remain latent in the economy. This substance may be fibrous, fatty, or mineral ; and may sometimes be composed of the whole, and at other times, of any two of these combined in various proportions. It must be confessed, however, that hitherto these transformations have been seen to occur in comparatively few instances ; and it would consequently be in the highest degree imprudent to expect such a result in any individual case."

STATISTICS.—Dr. Bennett affirms, that no trustworthy statistics of Cancer, sufficient for any useful purpose, as yet exist ; and when we remember the vagueness of the notions, regarding cancerous diseases, of those who furnish a large share of the materials employed in the construction of the usual statistical tables of Cancer, we are disposed to concur in this opinion. He states, that of the 526 cases recorded by Lebert, Sédillot, Gluge, himself, and some others, in which the morbid structures were carefully examined by the microscope, about two-thirds are canceroid, including all kinds of tumours not strictly cancerous. Time will show how far the new statistics are trustworthy.

In his remarks on the DIAGNOSIS of Cancerous and Canceroid Diseases, the author points out that the microscopic examination of the discharges from ulcerated growths, placed in positions where these may be obtained unmixed, or of small nodules cut from the surface of the ulcerated surface, may be highly useful in enabling us to detect their nature. It is well known that the greater number of practical medical men have arrived at the conclusion, that cancerous diseases almost invariably prove fatal. Our author, after pointing out that the difficulties of recognizing cancerous diseases in many cases, by the means usually employed, must render these conclusions less trustworthy, expresses himself more confidently on the curability of Cancer than most practitioners will regard as well founded. "It appears to me", he says, at p. 233, "that all analogy opposes the doctrine of the necessarily fatal nature of Cancer, or of any other morbid alteration of the economy. There

was a time when phthisis pulmonalis was also thought to be necessarily fatal, and when recoveries from it led practitioners to doubt their diagnosis rather than the truth of a received dogma. Morbid anatomy has exploded that error, as it will doubtless do that regarding Cancer." We know too little of the history of those growths which have been termed canceroid, to enable us to offer any very satisfactory remarks upon their prognosis.

In the chapter on the RATIONAL TREATMENT OF CANCEROUS AND CANCROID GROWTHS, the author considers—1, the means of Retardation and Resolution; 2, the means of Extirpation; and 3, means of Prevention. The growth of cells in animals and vegetables is favoured by an elevated temperature, a proper supply of moisture, room for expansion, and certain localities; and, on the other hand, is retarded by excessive cold, dryness, want of room, and unfavourable positions. Now as cancerous and canceroid tumours chiefly or entirely advance by the development and growth of cells, by placing the affected part under the circumstances unfavourable to cell development and growth, their progress may be retarded or arrested. The direct application of cold, therefore, when circumstances will permit of it, may be employed with this view. The cutting off the usual supply of fluids for a time, by the ligature of the arteries leading to the morbid growth, has also in some cases been apparently attended with good results. Pressure, steadily and effectively applied, has, according to some practitioners, been used with excellent results. The apparatus invented by Dr. Neil Arnott, figured and described by Dr. Walshe, or that more recently invented by Dr. JAMES ARNOTT of Brighton, with which external cold and dryness may be combined, seem the best fitted for carrying this mode of treatment into effect. The means of extirpation are: 1. The excision of the part; 2. Chemical agents which destroy texture. It is well known, that many surgeons, discouraged by the frequency of the recurrence of cancerous diseases, feel indisposed to remove them by operation; the more especially as they believe that, in many cases, it hastens the fatal termination. Other surgeons, again, take a more favourable view of operative interference; and, believing that they have excised growths undoubtedly cancerous, which have never returned, and that in other cases, though ultimately unsuccessful, they have relieved the patients from much present suffering, and have thereby prolonged life,—advocate having recourse to excision. One of the arguments usually urged by those who are averse to excision, in most cases, has been, that it is barbarous to subject the patient to an operation, often very painful, when we have little hope of its being useful,—is now, in a great measure, removed by the late discovery of the anæsthetic effects of ether and chloroform, especially the latter. No doubt the imperfect methods, hitherto almost generally practised, of distinguishing between Cancerous and Canceroid Growths accounts, in a great measure, for these discrepant conclusions of practical men. Dr. Bennett, after alluding to the successful results that have, in some cases, followed the excision of morbid growths,—proved, by the microscope, to be cancerous,—expresses himself in the following terms: "In like manner, by operating at an early period in all cases of suspected tumour, and keeping careful records, both of the minute structure (of the parts) removed, and of the ultimate results, much advantage would be gained to surgery. Lastly, by boldly excising all Cancerous growths within his reach, when, after careful investigation, the surgeon has satisfied himself that no internal organ is affected, and repeating the operation so long as the return of it is merely local, I feel persuaded that not only in many cases would life be prolonged, and much suffering saved, but that some might be permanently cured." (p. 246.) "If this applies to cancerous, it does so, with tenfold force, to canceroid growths, which every thing that we know warrants us in asserting are much less fatal and malignant." (p. 245.)

In discussing the "means of prevention," after pointing out how little confidence is to be placed in the internal remedies which have been recommended for correcting that unknown predisposition, in particular individuals, to can-

cerous exudation, he throws out some general views for regulating the constitutional treatment of Cancer, founded upon the difference between tubercular and cancerous deposits, which he, however, admits are purely hypothetical. As Vogel states (*Pathological Anatomy of the Human Body*, p. 290), carcinomatous structures are distinguished from tubercular, by their higher organization. Dr. Bennett (pp. 250-1) argues that, in proportion as the power of cell-growth increases in cancerous growths, they abound more and more in fat, this excessive cell-development must be materially modified by diminishing the amount of fatty elements, which originally furnish elementary granules and nuclei; and that a tendency to the formation of fat would seem, *a priori*, to be opposed to the cancerous tendency. "If a tendency to fat be an antidote to tubercle, as I believe it is, spareness may probably be considered opposed to Cancer. In the one case, we should do all we can to bring the nutrition up to, and above, the average; in the other, down to, and below, it." This plan of treatment does not preclude the endeavours to invigorate the general health by exercise, and attention to the secretions and excretions. We might not have noticed such prophylactic suggestions, from their being so extremely hypothetical, were it not that our deplorable ignorance regarding the constitutional treatment, both empirical and rational, of cancerous affections, induces us to listen patiently to speculations regarding it, which, in other circumstances, we would not be inclined to tolerate.

The profession is much indebted to Dr. Bennett for this valuable contribution to our knowledge of the microscopic structure of Cancerous and Canceroid Growths. It bears ample evidence of his great zeal, industry, and success, in pathological researches.

DEMONSTRATIONS OF ANATOMY; being a Guide to the Knowledge of the Human Body by Dissection. By GEORGE VINER ELLIS, Junior Professor of Anatomy in University College, London. Second edition: re-written. PART I: pp. 464. London: 1849.

In the preface to the first edition of his Demonstrations, Mr. ELLIS remarks, that "Anatomy may be studied in two different methods,—the one demonstrative, and the other descriptive. The former treats of the parts only as they are exposed in dissection, and of their relative position; the latter gives minute details of objects unseen, describing the different structures without reference to the order in which they appear, and has been very generally employed in the numerous works of instruction in Practical Anatomy; but every one acquainted with the difficulties to be overcome by the young dissector, will readily admit that this method is insufficient as a guide to his progress." Of the correctness of these observations, there can be no question. Most of the works intended as dissecting-room guides have been too much on the plan of systematic treatises on Anatomy, in which the description of one set of organs, *e.g.*, arteries, or nerves, is commenced and completed, without regard to the order in which the parts are displayed in dissection, or without due reference to their relation to neighbouring structures. The student is thus compelled either to study the Anatomy of one organ, or set of organs of a similar kind, to the neglect of other parts presented to him in dissection, either till their relations had been destroyed, or until he could procure a fresh subject,—a matter often of great difficulty,—or to undertake the irksome task of searching through various parts of his guide for the fragmentary descriptions of the parts exposed to his view.

"To supply this deficiency," says Mr. Ellis, "the present work, designed and completed from the subject, and confirmed by experience, is humbly submitted to the student, in the hope that his labours will be diminished, and the advantages to be gained in the pursuit of practical knowledge increased. In the execution of this plan, the great divisions of the body which are generally established, viz. head and neck, thorax, back, extremities, and

abdomen, have been placed in different sections; and the dissection of each has been conducted by the employment of successive stages, determined either by certain apparently natural limits, or by those most convenient in practice; by means of full directions for the performance of the different steps; by describing, at one time, only so much of a part as is visible; and by noting each as it appears." (Preface to first edition.) The advantages of this plan are obvious. It facilitates the endeavours of the student to obtain a clear idea of the parts he sees before him, and enables him to economize the means at his disposal; and further, it renders him familiar with *regional Anatomy*,—a method of studying the structure of the human body which is likely to prove of the greatest value to him in the practice of both medicine and surgery. An objection may be made, that the dissector is likely to lose sight of the connection between parts of the same organ, artery, or nerve, by examining it in different stages. We have had extensive opportunities of observing the use of Mr. Ellis's book, and do not remember to have seen that difficulty experienced. Besides, the student of Anatomy is supposed to study some systematic treatise as well as his dissecting-room guide; and Mr. Ellis's work is not intended as a substitute for Dr. Quain's *Anatomy*, by Professors Quain and Sharpey, Cruveilhier's *Anatomy*, translated by Dr. Madden, or other books of that class. He must often refer to a good systematic treatise to enable him to connect, in his mind's eye, the *disjuncta membra* which he has inspected, portion by portion, in the dissecting-room.

With all its excellencies, arising from the *regional plan* of description, and from its being the production of an accomplished practical anatomist and popular instructor, the first edition was not without its blemishes. These arose for the most part, from an overstraining of the subject beyond the capacity of the young student, rather than from any meagreness of information. Clearness was sometimes sacrificed to minuteness of description. The getting up of the work did not readily enable the student to refer to the descriptions of particular organs; there was a want of division into paragraphs and sentences of moderate length, and an absence of some means of distinguishing the principal objects presented, and to which the student should more particularly confine himself in his first dissection, from those to which he might more advantageously direct his attention at a subsequent period. In the second edition of his *Demonstrations*, Mr. Ellis has endeavoured, and we think successfully, to remedy these defects, and to render the book thoroughly suitable to the wants of the student. On first seeing the new edition, we were struck with the improvements in clearness which it manifested. The typography of the second edition is more distinct; the description of each organ, or part of an organ, as dissected, has a separate paragraph allotted to it; the names of muscles, large arteries, and other parts of prominent importance, are printed in small capitals at the commencement of the paragraphs, while the minor parts are distinguished by italics; and the student in his first dissection can easily determine what parts may be omitted for another occasion, as the descriptions of the smaller branches of arteries and nerves, and other parts requiring minuteness of dissection, are printed in a different type. The author has supplied a few omissions which existed in the first edition: but the chief improvement consists in his having shortened and rendered clearer his descriptions, by the breaking up of long and complicated sentences. To show the amount and character of the changes effected, we subjoin, from the two editions, the descriptions of the superior laryngeal nerve, and of the left subclavian artery at its origin.

"The *superior laryngeal nerve*, much larger in size (than the pharyngeal nerve) arises from the inner side of the (pneumogastric) nerve opposite the interval between the first and second cervical vertebrae, it descends beneath both carotid arteries, and in front of the longus colli

"The *superior laryngeal nerve* is much larger than the preceding branch (the pharyngeal), and arises from the middle of the ganglion of the trunk of the vagus. From this spot, the nerve inclines obliquely inwards, be-

muscle, to the pharynx and larynx, and forms an arch across the side of the neck lower down than the glosso-pharyngeal nerve; it now crosses the upper border of the middle constrictor of the pharynx, runs forward on the thyro-hyoid membrane beneath the thyro-hyoid muscle, with the laryngeal branch of the superior thyroid artery; the nerve then perforates the membrane, enters the larynx, and its distribution is followed in the dissection of the larynx; it supplies, for the most part, the mucous membrane. The nerve occasionally enters the larynx by an aperture in the side of the thyroid cartilage.”—(1st Edition, p. 216.)

The thoracic portion of the *left subclavian* artery “extends from the arch (of the aorta), to the margin of the first rib, ascends almost vertically from the chest, being closely enveloped by the left lamina of the pleura, which enters into the mediastinum, and separates it from the lung; but it is too deep in the chest to have any relation to the sternum and the muscles which arise from this bone, and it is posterior to the left brachio-cephalic vein. The artery lies on the trachea and recurrent nerve, then on the œsophagus which projects to the left of the trachea, on the thoracic duct which crosses beneath it, and is placed, higher in the neck, between the carotid and subclavian arteries, and above this it is situated over the body of the first dorsal vertebra, but at some distance from it, and rests on the last cervical ganglion of the sympathetic; to the inner side is the trachea, and the œsophagus and the thoracic duct, above where they are crossed by the vessels, together with the pneumogastric and cardiac nerves, and the left carotid artery, which are parallel but more anterior than it; and to its outer side is the pleura and the lung.”—(1st Edition, p. 344.)

The marginal notes, in the second edition, are likely to be of great service to the student, by supplying a running abstract of the text and giving facility of reference. The author is quite on a level with the progress of anatomical discovery, and has endeavoured to make the student acquainted with whatever is known, so far as it could be appropriately introduced. We are at a loss, however, to assign a reason for the omission of the descriptions of the organs of vision and hearing. A chapter might have been allotted to each, after the one on the anatomy of the brain.

Part First of Mr. Ellis's *Demonstrations of Anatomy*, contains the dissection of the head and neck, upper limb, thorax, back, and part of the abdomen. The Second Part is promised for October. We have great pleasure in recommending the first portion of the work, and in saying that if the second be not inferior to it, the whole will constitute the best manual for the dissecting-room with which we are acquainted.

neath the internal carotid artery, and reaches the larynx opposite the interval between the hyoid bone and the thyroid cartilage. The nerve then perforates the thyro-hyoid membrane, and is distributed to the mucous membrane of the larynx.—See LARYNX.”—(2nd Edition, p. 105.)

“The left subclavian trunk is directed almost vertically from the arch of the aorta to the inner margin of the first rib. In the thorax the vessel lies deeply, resting first on the œsophagus, and then on the side of the vertebral column, in front of the longus colli muscle; and it is covered by the left pleural bag in all its extent. On its inner side are the trachea and œsophagus, with the thoracic duct. Somewhat anterior to the level of the artery, though running in the same direction, is the vagus nerve, with some of the cardiac nerves.”—(2nd Edition, p. 327.)

LONDON AND PROVINCIAL MEDICAL DIRECTORY, for 1849. Pp. 532. London: 1849.

The volume for 1849 of this useful Annual is reduced in size, by the suppression of the Medical Diary and some other unimportant matter. The price also has been diminished from 8s. 6d. to 5s. To these alterations we make no objection; but we think some interesting features (such as the Obituary), have been spoiled, with very little saving of room; whereas there are retained trumpery titles, as appendages to certain names, which, when thus gravely paraded in the Directory, tend to throw all medical designations into ridicule. Mr. R. H. Whiteman, L.A.S. (p. 117, *London Directory*), is (from a misprint) styled "lecturer on the Nutritive Functions of the Human Body"! and Mr. James Cockle, in practice prior to 1815, (and of pill celebrity), figures at p. 52, as "matriculated at the University of Edinburgh, 1801"; which matriculation costs 10s. 6d., and is open to all the world. Recognized titles only should be given in a work professing to be a Directory to the Medical profession. It was quite right to curtail or to omit the names of many of the books and papers of authors: but, unfortunately, no uniform principle has been adopted, the most valuable works of many being deleted from this year's volume, and the least important retained: and sometimes the most recent, and at other times the earliest contributions only are mentioned.

In the preface, the editors say,—“We flatter ourselves that considerable improvement upon previous editions will be found in the present volume, as to matter, arrangement, and new contents.”—“The whole work has undergone a complete revision,” etc. And again they say,—“We flatter ourselves that in no work of a similar character will fewer errors be found,” etc. Self praise is always best avoided; but here, praise from any quarter is quite out of place. The errors are numerous, and many of them are obviously the result of sheer carelessness in revising the press, and want of collation of one part of the book with another. The publication for this year seems to have been issued without any editorial revision.

Had the “Street List, including the Suburbs,” been accurate, or even had it been correctly made up from the alphabetical portion of the Directory, it would have formed a useful addition: but we find, that, even tested by other parts of the book itself, it is not to be trusted. Under “University Street, Gower Street, No. 32,” is given the name, “Littleton, N. H., M.B.”—but we look in vain for this gentleman in the Metropolitan List of practitioners. More frequently, however, the names in the Alphabetical List have not been inserted in the Street List. For example,—under “Putney,” we find only the names of three medical gentlemen, viz., “Cormack, J. R., M.D., Shillito, Charles, M.D., and Shillito, Charles, jun.” But on turning to the Metropolitan List, we discover the names of three other gentlemen in practice in that suburb, viz., “Whiteman, R. Harland, L.A.S. (p. 117); Ridge, Benjamin, M.D. (p. 98); and Macilwain, George, M.R.C.S.” (p. 85). Strangely enough, in the Provincial List, we discover yet one more Putney doctor, viz., “Warre, Daniel, M.D.” (p. 437). Why Dr. Ridge should be entered in the Metropolitan List and Dr. Warre in the Provincial, is to us a mystery,—inasmuch as we are told that both reside in the “High-street.” As a climax to all these blunders, we may mention, that there is not, and never was, such a person as Dr. Warre in Putney; but that there is Dr. Wane, whose name is not to be found in any of the lists. Under “Finsbury Pavement, No. 20,” we find Dr. Peacock; but on turning to the Metropolitan List, we observe his address is there given as “20, Finsbury Circus.” Were our space of less value, we would go on multiplying our proofs of the charge which we bring against the editors, of neglecting the collation of the various lists in the work; but we have said enough to justify our accusation. We have now to state that the errors in designation are numerous, and chiefly the result of inattention. The editor ought to have known that Dr. Bence Jones is a Fellow of the

College of Physicians; and that Mr. Edward Tuson is not now Surgeon to the Middlesex Hospital. Besides errors such as we have given examples of, we find, especially in the Street list, a style of designation entirely absurd and greatly calculated to perplex the public. Without any explanation, and regulated only by caprice, some doctors are styled in the Street list, M.D., others Phys., and a select few "Physican." Dr. Paris, President of the College of Physicians, is plain "M.D." All the practitioners in Bolton Street, have "Phys" appended to their names, and Dr. Ramadge, Ely Place, is among the few styled "Physician." A number of gentlemen entitled to M.D. have it not appended to their names.

The projectors and editors of the *Medical Directory* have done good service to the profession by establishing their annual. It has, to our certain knowledge, greatly helped to expose the dishonest pretensions of ignorant pretenders, and to present the claims and position of regular practitioners in a proper way to the public. It is, therefore, from a desire to improve, and not with the intention of injuring, this work, that we have refrained from bestowing upon it the indiscriminate praise so freely lavished by most of our cotemporaries. We think that were more editorial care bestowed on the work, its circulation would be much extended, and any attempt at the establishment of a rival publication rendered futile. Were errors of carelessness removed, few members of the medical profession would grudge to give five shillings annually for the *London and Provincial Medical Directory*.

CHEMISTRY, AS EXEMPLIFYING THE BENEFICENCE OF GOD. By GEORGE FOWNES, F.R.S. Second edition. Pp. 160. London: 1849.

It appears that, "in the year 1838, Mrs. Hannah Acton, widow of the late Samuel Acton, Esq., of Euston-square, from motives of respect and regard for the memory of her deceased husband, and in order to carry into effect his desire and intention," provided means for the foundation of a septennial prize (under the management of the trustees of the Royal Institution of Great Britain), to be awarded to "the author of the best essay illustrative of the wisdom and beneficence of the Almighty, in such department of science as the committee and managers should, in their discretion, have selected." The work now before us is a second edition of the successful essay for the first period of seven years.

The subject is ably and felicitously discussed in the following order: 1, Chemical History of the Earth and the Atmosphere; 2, Peculiarities which characterize organic substances generally; 3, Composition and sustenance of plants; 4, Relations existing between plants and animals. The need of fatty and oleaginous food in the frozen regions of the north, is popularly and simply set forth in the following passage, which we extract as a specimen of the style of the author:—

"Take the condition of the Esquimaux in his hut of ice-blocks, or drift-wood; his only food the seal and the walrus, which he spears with his bone-pointed weapon, from a little frail coracle of skins. The air is cold enough to freeze quicksilver; he wraps himself in his dress of furs, and forth he goes with perfect impunity, and the cold of the shores of the frozen sea affects him less, than that of a chilly January day does the Englishman by his warm fire-side. Yet the Esquimaux has no fire-side; he cooks his food by the heat of a lamp fed with oil, the produce of the chase; his country produces no fuel, and he cannot think of devoting the few fragments of wood, brought by the ocean-currents from more favoured climes, which he finds upon the sea-beach, to this purpose,—they are far too valuable to be so employed. How then, it may be asked, is he capable of supporting this intensity of cold? The peculiarity of his food furnishes the reply.

"We are accustomed to look with horror and disgust at the food of these poor people, as we, in our ignorance and presumption, dare to call them; to commiserate the taste of those who, as our northern navigators relate, prefer

a piece of tallow-candle, or draught of train-oil, to the fare of an English man-of-war. But a little more consideration might, perhaps, shew us that the blubber and fat of the arctic cetacea and fish—the only food the inhabitants of these countries can obtain—really constitute the only sort of food which could enable them to bear up against the extremities of cold to which they are subject. There is no other substance but fat,—and that in very large quantity,—which would answer the purpose required. It is a substance exceedingly rich in hydrogen; and, in the body, eminently combustible. Weight for weight, it will generate a far larger amount of heat, when burned in the blood, than any thing else which can be taken as food. It will be wiser, then, instead of condemning, as filthy and abhorrent, the tastes and propensities of the Esquimaux, to consider them as a special adaptation, by an unspeakably benevolent Providence, of the very wishes and inclinations of the individual to the circumstances of his life.” (Pp. 118-120.)

A COURSE OF LECTURES ON DENTAL PHYSIOLOGY AND SURGERY; delivered in the Middlesex Hospital School of Medicine. By JOHN TOMES, Surgeon-Dentist to the Middlesex Hospital. 8vo. pp. 397. Plates and woodcuts. London, 1848.

These Lectures, sixteen in number, are a collected edition of a course delivered by the author at the Middlesex Hospital, in the year 1845, and published, at various intervals, in the *Medical Gazette*, for that and the two following years. In his preface, Mr. TOMES says: “It has been thought advisable that these Lectures, scattered at irregular intervals in the columns of the *Gazette*, should be collected; and, after undergoing such revision and amendment as my leisure and opportunities afford, be published in the present form. The illustrations are double the number of those published in the *Medical Gazette*, and are re-engraved.”

The first six Lectures are entirely devoted to the Structure and Physiology of the Human Teeth; and we cordially recommend their perusal to all desirous of investigating this subject, as a concise and lucid account of what is known respecting it. For more extensive details relating to the anatomy, both human and comparative, of the teeth, Professor Owen’s *Odontography* can be referred to. The recent investigations of Purkinge, Retzius, Owen, Nasmyth, Tomes, Goodsir, and others, have brought our knowledge of this branch of structural anatomy to a degree of perfection, unsurpassed, if not unequalled, by that of any other department of that science. Among these honourable names, Mr. Tomes appears distinguished; as he seems to have been the first in this country to investigate with success the structure of the teeth. The discoveries of Purkinge and Retzius, though not known in this country, had been made when Mr. Tomes commenced his researches: his observations confirmed the views of the foreign anatomists.

In his description of the structure of the human teeth, the author first treats of their general form and relation to each other; and then gives a concise account of their microscopic structure, describing in succession the dentine, the enamel, and the cementum. The characters of the dentinal tubuli, their peculiarities in form and arrangement in different parts of the tooth,—the intertubular tissue, which he considers granular,—the vascular canals in dentine, common in lower animals, but only occasionally found in man,—the *secondary dentine*, deposited in the pulp-cavities of the teeth of old persons,—the effects of madder on dentine,—and the chemical analysis of this substance;—together with the structure of the enamel and cementum,—as far as they relate to the human teeth, occupy a considerable portion of the second and third lectures.

The concise, yet perfect, manner in which these subjects are treated of by the author, scarcely admits of condensation, therefore we extract some interesting remarks on the “Relations of the Dental Tissues to each other, and

to Bone", which occur towards the end of the third Lecture. After stating that all tissues are, strictly speaking, extra-vascular, but that we must regard a tissue as highly organized, or not, in proportion to the relative frequency of capillaries and vessels in the interstices, Mr. Tomes says:—

"Taking the relative frequency of vessels in a tissue as an index of the degree of its organization, teeth will be placed near the bottom of the scale, but different grades will be assigned to their three component tissues."

"The cement, or tooth-bone, when collected in any amount, is possessed of vessels, as well as cells and radiating tubes, in connexion with the vascular surfaces. To this element of the tooth we must, in accordance with the above plan, give the highest place. The dentine, possessing sometimes, though not constantly, vessels, has in all cases its tubes or capillary pores opening directly upon a vascular surface; this, then, must be considered as the second, while the enamel, itself without vessels, is only connected with a vascular surface by the intervening dentinal tubes, and holds the third, or lowest degree of organization of the three dental tissues.

"If the relative density of tissues be in proportion to the low degree of vitality, still the dental substances will hold the above arrangement. Again, if the relative sensibility of tissues be regarded as an index of their degree of vitality, still the same places must be accorded to the cement, dentine, and enamel."—pp. 62, 63.

In accordance with the law of gradual transition from one form of organized structure to another, and from observations on the dentinal and cemental tissues in the kangaroo, where they are mixed, and a few specimens of human teeth presenting the same appearance, it appears that "the dentine is but a modification of the cementum; that the dentinal tubes are but elongated cemental cells; and that this elongation is necessary to enable the tooth to perform its allotted part in the animal economy. In tracing the relations between the dentine and enamel, we find the change in passing from one structure to another equally gradual. For illustrations, recourse must be had to the teeth of fish, in which the two structures very nearly resemble each other. In man, the tubes send branches into the enamel; but the two structures, being each highly developed, present points of marked dissimilarity."—p. 64.

With respect to the *relation of the dental tissues to bone*, Mr. Tomes remarks, that "in bone, as in the cementum, and in dentine, and indirectly in the enamel, we find a set of capillary tubes, commencing upon a surface" (that of the Haversian or vascular canals, or the pulp-cavities in teeth), "bathed by vascular currents, and passing into the structure, there to establish a perfectly continuous network of tubes, so that a fluid entering at one point may find its way through the whole mass. That this arrangement is subservient to the nutrition of the texture is sufficiently apparent, when we consider its relations to the vascular system, coupled with the fact, that these tubuli must be filled with fluid, even by atmospheric pressure, and that the only source of fluid is the blood." "From these considerations it is seen that osseous and dental tissues are, in the form and arrangement of their cells and tubes, very closely allied. But the relations of the ultimate tissues are yet closer; for dentine and cementum, and probably enamel, are built up, like bone, of more or less spherical granules, the difference in the tissues being in the arrangement of the granules, and in the relative quantity of earthy matter with which they are impregnated."¹—pp. 65, 66.

Lecture IV treats lucidly of the Development of Animal Tissues from Nucleated cells—Development of the Teeth from Papillæ composed of cells—the Papillæ derived from Mucous Membrane—three stages of Dentition:

¹ We here may remark, that Dr. Sharpey describes the laminae surrounding the Haversian canals in bone as having a finely reticular structure; but we are not aware whether any such appearance has been observed in the teeth.

Follicular, Saccular, and Eruptive. For the substance of this lecture the author is in a great part indebted to the memoir of Mr. JOHN GOODSIR, to whom, principally, anatomists owe their knowledge of this branch of the subject.

Lecture V contains an account of the Development of the Dentinal Pulp and its conversion into Dentine—of the Enamel Pulp and its conversion into Enamel—and the Cemental Pulp and Cementum. The *Dentinal Pulp*, from its earliest appearance, is “mainly composed of a series of nucleated cells, united and supported by plasma, and is supplied with vessels, and during the greater part of its existence, with nerves.” In addition to these elements, the author has observed, in the earliest stage, a fine *areolar tissue*, consisting of a “mesh-work of delicate fibres and bands of homogeneous matter, in the thicker part of the walls of which are scattered here and there nucleated cells; while the meshes are occupied by a thick, clear, homogeneous fluid or plasma; and in this there are a number of nucleated cells.” A partial persistence of this condition appears to give rise to the appearance of cavities, sometimes found in the dentine. In the *second* or *cellular* stage, the areolar tissue has disappeared, and the dentinal pulp consists of thickly but irregularly scattered nucleated cells; which, in the *third* or *linear* stage, acquire a linear arrangement, nearly vertical to the surface. The development of the dentine then proceeds by the longitudinal division and elongation of the cells, and the communication of their central nuclei or cavities, so as to form a continuous tube. The subdivision of the primary cells into four secondary cells, described by Mr. Owen, has not been observed by Mr. Tomes; nor has he been able to satisfy himself that amorphous subgranular salts are deposited in the interior of the tubes. The processes of linear arrangement and calcification commence at the apex of the coronal surface of the pulp, and extend down its sides; and the form of the cells may be distinguished after their confluence and impregnation with lime. The moniliform appearance of the tubuli in the temporary, and sometimes in the permanent teeth, which led Mr. Nasmyth to consider them as baccated fibres, is believed to be due to the individual pulp-cells preserving the convexity of their centres after union. At pages 94 and 95, we find a comparison of the development of the osseous and dental structures. After giving an account of the formation of bone, the author says: “In comparing the development of dentine with that of bone, we find that at first sight the pulp-cavity of the former bears a very striking resemblance to an Haversian canal, and that the dentine resembles an Haversian system. On considering the subject more carefully, we find, also, that the pulp-cavity of the tooth is analogous to the medullary cavity of bone, and that the dental tubuli are analogous to the canals formed by the confluence of the cartilage cells, prior to the existence of vessels in newly-formed osseous tissue. Thus it would seem that, where a tubular tissue is required, the tubes are formed by a linear confluence of cells”; the tubes so formed either retaining their original character, as in dentine, or becoming canals for vessels, as in bone.

The *Enamel Pulp* is first found in a *reticular* stage, consisting of very fine structureless fibres, the interstices of which are occupied by fluid, in which are peculiar nucleated cells, from 1-2500 to 1-1000 of an inch in diameter. Next to this, which is on the dentinal surface, we find, according to Mr. Tomes, a *stellated areolar tissue*, consisting of “short transparent fibres that radiate from central nuclei, take a straight course, and join other nuclei that are similarly circumstanced.” The reticular gradually gives place to the stellated tissue, probably from the radiation and union of the large cells of the former; and the dentinal surface of the latter is formed into a basement membrane, with nuclei, from which are developed columns. The reticular tissue is provided with blood-vessels; and it seems that through these and the fluid of the tissue, and afterwards through the stellated tissue, the nutriment destined to reach the columnar tissue must pass. As the functions of the reticular and stellated tissues become performed, they gradually merge

into the columnar form, and lose their vascularity. The author makes an interesting comparison of the enamel pulp with mucous membrane. He describes a structure resembling the basement membrane, on the surface of the dentinal pulp, to which the columns of the enamel pulp are fixed: and he considers the cells forming the enamel to be analogous to the epithelium of mucous membrane, differing, however, in becoming hard and persistent. The transverse striæ, observed by Mr. Lintott, are believed to be due to "the alternate contraction and dilatation of the fibres, the contractions corresponding with the junction, and the dilatations with the centres, of the cells."

The *Cemental Pulp* differs from those before described, in gradually increasing on the external surface as calcification proceeds from within, outwards. In its development, it has a close analogy to the cartilage from which the flat bones are formed. Exostosis, or hypertrophy of the cementum, sometimes occurs; and in such cases, new cemental pulp is formed.

Lecture VI treats of the Eruption of the Temporary and Permanent Teeth, and contains some remarks on the Teeth as an index to Age, on Third Sets of Teeth, Supernumerary, and Discoloured Teeth, the Hereditary Character of Teeth, and the Form of Teeth and Palate, as necessary to Voice and Speech. On the latter subject, the author makes the following remark: "Wherever you have a fine, clear, sonorous voice, you will find well formed and well arranged teeth; each tooth will occupy its proper place. But what is perhaps still more important, the hard palate will be well formed; that is, it will present a section of a large arch, perfectly free from contraction, either from side to side, or from before backwards. There will not be a deep vaulted form, neither will there be a sudden elevation immediately behind the front teeth, so common in those who speak with indistinctness: on the contrary, the palate will rise gradually." (p. 123.)

The remaining ten Lectures are devoted to the Diseases of the Teeth, and their Treatment.

Lecture VII is occupied with a description of the Diseases which are incidental to the Temporary Teeth; and we find here noticed, Interrupted Dentition, Inflammation, and Induration of the Gums; Caries and Necrosis of the Temporary Teeth; Diseases of the Gums during the presence of the Temporary Teeth (Inflammation, and *Cancrum Oris*); and Diseases of the Alveolar Periosteum of the Temporary Teeth. In the treatment of *cancrum oris*, (by which the author understands a disease commencing by phagedenic ulceration of the gums), he recommends the use of gray powder, as a mild aperient; the use of tonics, and liberal diet; and the destruction of the whole surface of the ulcerated part, by nitrate of silver. Chlorate of potash, as recommended by Dr. HUNT, appears to be an useful remedy.

To this Lecture are appended some interesting statistics of the relative durability of the teeth, with respect to situation, age, and the several conditions which render their removal necessary.

Lectures VIII and IX treat of Irregularities in the appearance and arrangement of the Permanent Teeth, and of mechanical injuries: and contain some useful instruction on the means of remedying these conditions.

In Lecture X *Caries of the Teeth* is ably treated of. The author defines it to be *death and subsequent progressive decomposition of the whole or part of a tooth*. He believes "that the dentine, from abnormal action, loses its vitality, and, with the loss of vitality, the power of resisting chemical action; and that, consequently, the dead part is, under favourable circumstances, decomposed by the fluids of the mouth." Where the dead part is separated from the living, this is discovered by Mr. Tones to be attended with a filling up of the tubes of the healthy dentine, so as to cut off the ingress of fluids. This consolidation has its analogue in what takes place in the antlers of the stag, previous to their being shed, where the Haversian canals become very small, and the cancelli are almost obliterated by the development of laminæ.

The decomposition of the dead dentine, he believes to be effected by the acid secretions of the mouth; but if the saliva contain an excess of phosphates, or the dead dentine be highly polished, decomposition will be retarded. He concludes, that "*dead dental tissue, when retained in the mouth, will be decomposed or not, in accordance with the circumstances under which it is placed; and that the decomposition is effected by agents applied externally; and, moreover, that the phenomena observable without the aid of the microscope, are wholly attributable to the decomposition of a necrosed portion of dental tissue.*" (p. 214.) The predisposing causes of caries are chiefly found in the development of the dental tissues, and especially the enamel. This is sometimes defective in quantity,—being irregular on the surface, giving a honey-comb appearance; and in such cases, it will generally be found that the patients suffered from ill health at the time when its development was going on. In some cases, the fissures, which are superficial on the healthy surface of a molar, are continued nearly to the dentine, with only a small layer of enamel, having a bulb-like mass of granular matter superimposed at the bottom. Defects in the quality of the enamel are of several kinds: 1. Where the enamel-fibre remains permanently granular, calcification having advanced before the blending of the parts was completed; 2, the substitution of calcified cells for fibres; 3, the presence of cavities in the substance of the enamel, sometimes large, and interfering with the course of the fibres,—sometimes small and elongated, and lying between them; 4, where the fibres of the enamel are not perfectly united; 5, cells are occasionally found in the enamel of faulty teeth. In the dentine, the presence of areolar cavities acts as a predisposing cause of caries. In addition to these, there may be constitutional causes; pain and decay coming on sometimes without any obvious reason, sometimes after fever,—especially scarlet fever; occasionally after salivation. Scrofulous children are liable to lose their teeth early; also dyspeptic persons, or those living in a low, damp situation. Many substances, as mineral acids, or the gastric acids in eructation, are liable to produce caries. The author has not observed that relation between lateral pressure and caries, which is insisted on by some writers. The consequences of caries may be destruction of the crown without pain; or there may be pain from the beginning, and inflammation of the pulp, dental periostitis, and alveolar abscess; sometimes even periostitis and necrosis of the jaw; occasionally tumours of the gums, or fungous growths of the pulp. In the treatment of superficial caries, the diseased portion should be removed by a file or sculper, and the surface of the dentine kept well polished. Chloride of zinc, or other escharotic, may be used to destroy sensibility where there is much pain. But if the disease be found deeply seated, recourse must be had to plugging. On this subject the author observes: "It is a very good practical rule, if, in removing the softened dentine, or in pressing a probe into the cavity, pain is felt; but only so long as the instrument remains in contact with the tooth,—to proceed to plug the cavity, for then the pain will be in the dentine only, and will not be followed by mischief; but if the pain continue after withdrawing the instrument, to postpone plugging, and resort to some means to restore the pulp to a healthy condition, or to produce its destruction,—for the continuance of the pain is a tolerably sure sign that the pulp is more or less involved in disease, and has been pressed on by the instrument; and that, if the tooth be immediately plugged, inflammation will supervene." (p. 230.)

Lecture XI contains an account of dental necrosis, exostosis, abscess in the substance of the dentine, loss of enamel and dentine from the anterior surface of the teeth, absorption of the fangs of the permanent teeth, cracks in the enamel, pain in sound teeth.

Lectures XII and XIII are devoted to diseases of the dental pulp, and to diseases of the dental periosteum.

Lecture XIV embraces the diseases of the alveoli, gums, and antrum. Our limits will not permit us to do more than state, that the subjects we

have just enumerated are treated of in a manner which shows the author to be thoroughly conversant with them.

Lecture XV is devoted to *Operative Dentistry*; and contains, at the end, some remarks on *Anæsthesia*. The author is by no means in favour of the indiscriminate use of chloroform or ether, in cases of extraction of the teeth. After stating some of the ill results which have arisen from the use of anæsthetic agents, he observes: "We surely use a great power to overcome a very trifling difficulty, when we give chloroform preparatory to extracting an ordinary tooth. The remedy, in my mind, seems strangely out of proportion to the evil to be avoided. Then again, if the mind is to be disturbed for a week or fortnight (and these cases are not so uncommon), is it well to take that chance merely to avoid a transient pain? Distressing nausea for a day, would be, to me, a far greater evil than the pain occasioned by the extraction of an ordinary tooth. I say an ordinary tooth, because, sometimes, there is inflammation of the gums, or a peculiar shape or position of a tooth, or other complication, that makes the operation unusually painful. If such complications exist, or if several teeth have to be removed at the same time, the pain being greater, we are, perhaps, warranted in using a powerful antidote." (p. 356.) He prefers the minimum dose of chloroform, both because it is not necessary to induce complete insensibility, and on account of the unpleasant symptoms which not unfrequently follow the use of a full dose.

Lecture XVI is occupied with instructions for the construction, adjustment, and use, of *artificial teeth*.

We have endeavoured to give a general outline of this excellent work, along with a pretty full abstract of some portions of it; but the entire volume must be perused by those who desire to be well informed on the subjects of Dental Physiology and Surgery.

AN ESSAY ON SOME OF THE MOST IMPORTANT DISEASES OF WOMEN, WITH A DESCRIPTION OF A NOVEL INVENTION FOR THEIR TREATMENT AND RELIEF. By W. JONES, M.D., etc., Physician to the Free Hospital for Women and Children, etc. Illustrated with Cases and Wood-cuts. 12mo. pp. 40. London: 1848.

From the title-page, above transcribed, one would hardly fancy that the "Essay" of Dr. Jones would not occupy more than twelve pages of the type in which this notice is printed; yet such is the case. But is the matter all original? If so, many would excuse its brevity; and pardon the magniloquence of the title-page. The profession surely did not require such information as is contained in the following passage:

"The most common period of the commencement of menstruation in this country is from the twelfth to the fourteenth year. It is generally ushered in, or at least accompanied by the following train of symptoms. The individual experiences pains and inconveniences unknown to her before, she becomes more timid and reserved in manner, shuns the society of her hitherto male (?) companions, loses the frolic and buoyancy of childhood, to assume the grace and dignity of woman; the haunches expand, the breasts become fuller, the whole frame is moulded into a chiselled roundness, and an effusion takes place which characterises the arrival of puberty. This effusion ordinarily occurs every twenty-eight days, which being the duration of the lunar month, it is hence called THE MENSES: it is also denominated THE CATAMENIA; in common parlance its existence is expressed by the terms, being unwell—being regular—having a change—or other terms of which ingenious delicacy prompts the employment."—pp. 18, 19.

The "novel invention" is the "Syphon douche", an instrument "founded on the property which water has, to find its own level, and to escape with a force proportionate to the height of its column. It consists of 9 feet of gutta percha

tubing, three-sixteenths of an inch in the diameter of its bore, divided into two parts—one seven, the other two feet in length ; to one end of the longer portion is attached a small leaden weight, and to the other, the plunge portion of an union-joint ; to one end of the shorter portion is attached the corresponding socket portion of the union-joint, and to the other, a perforated bulbous tube of box-wood, or other material, for introduction into the natural passage.” The author considers his invention something more than—what we really believe it to be—a very efficient contrivance for washing out the vagina ; for he says, “ the bulb may be made of caoutchouc, gutta percha, bone, ivory, or other material, but I prefer box-wood, more especially in the treatment of disease, because, reasoning from the manifest development of free electricity by the passage of steam at a high pressure through box-wood jets, as seen in the hydro-electric machine, I am induced to think it possible, that some such development takes place in the employment of this instrument, and am otherwise at a loss to explain its efficient action in dissipating congestive and other tumours in the uterus.”—p. 26. Perhaps our readers may be able, from the title-page and the above extracts, to form a correct estimate of Dr. Jones’s *Essay on some of the most Important Diseases of Women*. Our own opinion is, that Dr. Jones—who seems to be a sound practitioner—has inadvertently done himself an injustice, by allowing his pamphlet to appear in a form, and under a title, which may induce many to regard it rather as an obtrusive advertisement of its author, than as a contribution to science.

TREATISE ON THE DISEASES OF THE HEART AND GREAT VESSELS, AND ON THE AFFECTIONS WHICH MAY BE MISTAKEN FOR THEM ; comprising the Author’s view of the Physiology of the Heart’s Action and Sounds. By J. HOPE, M.D., F.R.S. Fourth edition. 12mo. pp. 611. London : 1849.

This Treatise of DR. HOPE ought to find a place on the shelves of every medical practitioner, and of every student of clinical medicine. It is one of those classical works which can never grow old or get out of date. The present edition possesses the advantages of cheapness and additional matter (left in manuscript by the author) ; but, for economy sake, the plates are necessarily omitted, with the exception of the diagrams illustrative of the diagnosis of valvular disease. The value of this edition is greatly enhanced by the copious and excellent index of MR. JAMES FREEMAN.

A PRACTICAL TREATISE ON THE DOMESTIC MANAGEMENT AND MOST IMPORTANT DISEASES OF ADVANCED LIFE ; with an Appendix, containing a Series of Cases illustrative of a New and Successful Mode of Treating Lumbago and other Forms of Chronic Rheumatism, Sciatica, and other Neuralgic Affections, and Certain Forms of Paralysis. By GEORGE E. DAY, M.D., Fellow of the Royal College of Physicians, and Physician to the Western General Dispensary. 8vo., pp. 337. London : 1849.

This work, though intended for the public, may be useful to the profession. A considerable amount of information has been collected ; and the Bibliography of the different branches of the subject has been carefully compiled. The method of treating Lumbago, etc., so hopefully announced on the title-page, is the “*cautérisation avec le marteau*” of MAYOR,—a practice which seems to have been previously recommended in 1826, by the late SIR ANTHONY CARLISLE, in his letter to SIR GILBERT BLANE, “On Blisters, Rubefacients, and Escharotics.” DR. DAY refers to this, and to the writings of M. TROUSSEAU and DR. CORRIGAN on the same subject.

CRITICAL DIGEST OF THE BRITISH AND FOREIGN MEDICAL JOURNALS.

PRACTICE OF MEDICINE AND PATHOLOGY.

DR. RILLIET ON INTESTINAL HÆMORRHAGE IN NEWLY-BORN INFANTS.

Cases of Intestinal Hæmorrhage in Newly-Born Infants are not numerous ; and many of those recorded are so deficient in detail, as to be of little value. English treatises on diseases of children certainly do not give adequate attention to the subject ; and though French and German pathologists have taken more notice of it, it is still so imperfectly known as to justify our inserting, without much abridgment, a translation, rather than an abstract, of a valuable memoir, entitled *Sur les Hémorrhagies Intestinales chez les Nouveau-Nés (Mélæna des Enfants)*, by Dr. Rilliet, Physician to the Hospital of Geneva. The following is the substance of his essay :

INTRODUCTORY REMARKS.—The circumstances in which the newly-born infant is placed at birth, from the delicacy, and peculiar anatomical structure of its organs, together with the impediments which may be opposed to the free play of the new functions which, at that time, the organs are required to perform, predispose it to certain forms of hæmorrhage,—which may be regarded as special to it, so far as causes, though not as symptoms and results, are concerned. The most common forms are cerebral and rachidien hæmorrhage ; the former inducing apoplexy, and the latter, tetanus. Another, and a rarer description, is hæmorrhage into the stomach and intestines.

Dr. Hesse, in his memoir, *Von Blutberchen und der Melæna der Neugebornen*, etc. (1825), gives the literary history of the disease, of which, in the following essay, I have freely availed myself. In 1750, Storch mentioned the melæna of infants. After this date, we find scattered observations and cases by Brebis, Ellinger, Riedlin, Hoffmann, Frew, Trnka, Lafaurie, and Carus. The earliest monograph on the subject is that published, in 1825, by Dr. Hesse, and above cited. Dr. Rahn-Escher (of Zurich) published, ten years after the appearance of the work of Dr. Hesse, some interesting facts, bearing principally upon the consequences of the disease and its etiology. Since the appearance of these two works (the former of which was republished, almost verbatim, in the treatises of Meissner in 1838, and of Schnitzer in 1843), nothing has appeared on the subject, in Germany, except some isolated cases by Kiwisch, in 1841, Lumpe (*Oest. Med. Wochenschrift*, Nos. 4, 5, and 51, of year 1841), Hoffmann (*Badische Med. Annalen*, 1842), and Helmbrecht (*ibid.* vol. ix, 1843). Kiwisch, who calls the disease “*the abdominal apoplexy of new-born children*,” alleges that it can be distinguished from hæmatemesis and from melæna. This distinction is not justified by his cases, which present a very great similarity to all those recognized as cases of melæna. Billard (*Traité des Maladies des Enfants Nouveau-nés, et à la Mamelle*, 3me édition, p. 384), refers to intestinal congestions and hæmorrhages. He draws no distinction between primary and secondary hæmorrhages ; but his cases belong exclusively to the latter class. Dr. Gendrin (*Traité Phil. de Médecine Pratique*, t. i, p. 189) makes some remarks on the anatomical character of the disease. M. Barrier, in his *Traité des Maladies de l'Enfance* (1845), reproduces the researches of Billard, Rahn-Escher, and Gendrin. Two cases have been published in England by Drs. Dorington and Gairdner ; but in the English treatises on the diseases of children, there is no mention made of the melæna of infants.

I have had an opportunity of observing, at Geneva, a case, unique in the

annals of medical science, of hæmorrhage from the stomach and intestines of male twins. These cases, and the works already cited, afford the materials for the following observations.

1. CAUSES.—The etiology of infantile melæna is still involved in obscurity. The subject may be treated of under the following heads :—

1. *Age and Sex*.—It is essentially a disease of the early days of life. Generally, those affected are not more than from one to four days old; but in a case mentioned by Gairdner, it did not come on till the eleventh day; and in another, recorded by Ellinger, it did not occur till about the end of the fifteenth or twentieth week. From the cases which I have consulted not being all complete, the figures in the following tables exhibit variations :—

Age.	No. of individuals.	Age.	No. of individuals.
12 to 30 hours	...	4 days	...
1 day	...	6 days	...
56 hours	...	11 days	...
2 days	...	15 weeks	...
3 days	...	20 weeks	...
	Total	...	20

Billard, in fifteen cases of passive hæmorrhage, observed :—

Age.	No. of individuals.
1 to 6 days	...
6 to 8 days	...
10 to 18 days	...

It appears that the greater proportion of cases occurred among male infants.

2. *Hereditary tendency*.—From an analysis of cases made by Dr. Rahn-Escher, he has been led to attach much importance to this cause. He found that the mothers had been subject to irritation of the glands, derangement of the abdominal circulation, and disorder of the function of digestion, both during the existence and non-existence of pregnancy. It must be recollected, however, that these maternal conditions are very common, and that nevertheless melæna is extremely rare in newly-born infants. Hereditary influence can be more readily admitted, where the parents have been subject to hæmorrhage (as in cases quoted by Hesse), or where several children of the same family have been simultaneously affected, as I have seen, or successively, as Dr. Rahn-Escher has observed.

3. *The circumstances attendant on the delivery, the state of the infant at birth, and its treatment immediately afterwards*.—Do they afford a more satisfactory explanation of the hæmorrhage?—It has been alleged that long delay of the infant in a narrow pelvis, protracted labour, and difficult parturition, produce melæna. By examining the imperfect cases which we possess, I have ascertained that the number of difficult somewhat exceeds that of natural labours; but in this there is nothing remarkable, as most of the mothers were primiparous. Besides, the difference is so inconsiderable, as hardly to deserve to be taken account of.¹ Kiwisch is the only author who, in reporting his cases, notices premature ligature of the chord as an active cause. In two of his four cases, the chord was prematurely tied, and in a third, symptoms of cyanosis obliged the midwife to cut the ligature. The greater number of Billard's fifteen cases were remarkable for plethora of the body, and a congested state of the integuments. The observations of authors, as well as our own, do not sanction plethora being regarded as a cause of

¹ We are inclined to think that the author probably under-estimates the importance of protracted and difficult labour, as causes of melæna in the infant: and this suspicion is strengthened by two facts, incidentally admitted by him, viz., that the majority of the infants were males, and the majority of the mothers primiparæ. Male births are more difficult than female, and first are more tedious than subsequent labours.—Ed. *London Journ. of Med.*

mekena. Out of sixteen infants, eight were delicate and feeble; seven healthy; and only one asphyxiated.

4. *Rupture of a vessel*, Brebis considers among the causes; but his hypothesis is entirely contradicted by pathological anatomy. Böhler, Billard, Rahn-Escher, Gendrin, Kiwisch, Hoffmann, Helmbrecht, and Dorington, state, that in opening the intestinal canal, they have specially noted the absence of any grave lesion of the vessels. In some cases, nothing has been observed, beyond the presence of extravasated blood in the stomach and large intestines, the mucous membrane being not more injected than it naturally is in newly-born infants (Gendrin, Kiwisch). In other cases, this membrane presented no lesions whatever; but the large abdominal vessels, the liver, spleen, heart, lungs, and cerebro-spinal system, were gorged with blood (Billard). The dilatation of the mesenteric and mesocolic veins—in some places to the size of a crow-quill—has been mentioned by Böhler. Helmbrecht has observed dilatation of the capillaries, with thinning of the mucous membrane. Dorington and Rahn-Escher have observed ramollissement, inequality, and redness of the mucous membrane of the large intestine, without extravasation of blood.

The true Predisposing Causes ought to be sought for—

First, in the injection of the intestinal tube, a state which is normal in the newly-born infant, as has been shown by Billard. It is easy to understand how an exaggeration of this condition, arising from atony of the vessels, or an impediment to the abdominal circulation, produced by an arrest of blood in the vena portæ, or by the increased volume of the liver and spleen, should, in a high degree, predispose to intestinal hæmorrhage.

Second, in the difficulty with which respiration becomes established. The blood, not being able to flow to the lungs, expands them but imperfectly, engorges all the other organs, and especially the intestines, which, being already in a state of congestion, are unable to support this new tax, and allow the blood to be emitted from the vessels into the cavity of the bowel.

II. DESCRIPTION OF THE DISEASE, AND CASES.—I cannot give a better account of the disease, than by detailing the two cases which occurred in my own practice. They are more complete than most of those recorded by authors.

CASE I.—On the 30th of January, 1846, I was sent for (at 1 p.m.) to see a newly-born male infant, said to be in very great danger. The following particulars were communicated to me by the nurse and medical attendant, M. Maunoir:—The infant (a twin), had been born at four a.m. Labour had not been very difficult, but sufficiently so for M. Maunoir to employ the forceps. The placenta had separated. The liquor amnii had been in small quantity. The umbilical chord presented nothing remarkable: it had been tied at the usual time, and in the ordinary manner. The infant was of the full time, not very large, but well proportioned, not plethoric, very lively, crying forcibly. All the functions appeared natural; the meconium had been expelled some hours after birth, after half a tea-spoonful of castor oil. The child then had some rest, after which he sucked with avidity: nothing, in fact, could lead one to suppose that anything untoward had happened, till the nurse, in changing his linen, observed that some remains of the meconium had been expelled, mingled with a certain quantity of blood. Two hours later, he passed a second stool, abounding with pure blood, liquid, and mixed with clots; and at one o'clock, when I was sent for, he had a third bloody motion. When I examined the little patient, he was deadly pale. His pulse was imperceptible; his legs and arms were cold; his eyes were habitually closed, as was likewise his mouth. He neither had the wish nor the ability to swallow, but retained the power of moving and crying. The abdomen was soft, and not swollen, and pressure on it did not seem to occa-

sion pain. He had no vomiting. The mouth presented no lesion, when examined by forcible depression of the inferior maxilla ; and there were no nervous symptoms. I caused compresses, soaked in cold vinegar, to be applied to the abdomen, directing, at the same time, the extremities to be wrapped up in hot flannels. I prescribed two clysters, containing twelve grains (nearly ten grains of English Apothecaries' weight) of the extract of rhatany.

They were almost instantly returned, accompanied by a very considerable quantity of blood. At four in the afternoon, the infant continued in the same state, when M. Maunoir and I prescribed compresses, soaked in a strong decoction of rhatany (two ounces to the pound), and clysters, with twelve grains of the extract. Like the former, they were almost immediately rejected, and followed by a copious discharge of fluid and clotted blood. He had the sixth bloody stool at six in the evening. We were now satisfied with simply applying the compresses. The pulse rose to 120 ; the infant had slight trembling of the hands, and oscillation of the globes of the eyes ; but nothing which could be properly called convulsions. The abdomen was not tympanitic. From 10, p.m., to eight o'clock the next morning, he was induced to take from eight to ten tea-spoonfuls of cold milk, which remained on the stomach ; he was then put to the breast. He seized the nipple easily ; the pulse was regular, and of fair strength. At mid-day, he passed two scanty stools of a green colour, and destitute of blood. At one o'clock, the countenance was good, not very pale ; and the pulse was 104, and of fair strength. He was sucking easily and greedily ; the trembling of the arms and the oscillation of the eyes had disappeared. At eight a.m., on the 8th of February, he passed two yellowish stools : during the night, upon several occasions, he sucked for two or three minutes. The pulse was small ; but his cries were energetic, and his movements proclaimed the existence of life. His countenance had become contracted, and it had that yellow tint characteristic of those who have frequent hæmorrhages. The abdomen did not present any symptoms, excepting tympanites in the extent of three finger-breadths in the left hypochondrium. Upon this day, the cure was considered as certain ; the child improved rapidly ; but the pallid visage remained for a considerable time. When he had attained the age of six weeks, he was vaccinated ; and the skin, though scarcely wounded by the lancet, afforded a considerable quantity of blood. At present, he is quite robust, and in a natural condition.

No appreciable cause, external or internal, hereditary or acquired, anterior, concomitant, or posterior to parturition, can be assigned as the cause of the invasion of the disease.

CASE 2.—The first child was in an alarming condition at six o'clock in the evening, when I was sent for to see the second, who was vomiting blood, and who, immediately after, passed several large stools of liquid blood, mixed with clots. I ordered for him clysters of rhatany ; but, as in the case of his brother, they returned, being followed by copious bloody stools. I rested satisfied with applying, to the belly, compresses, soaked in a cold decoction of rhatany, and wrapping up the inferior extremities in flannels saturated with a hot aromatic infusion. The same general symptoms presented themselves as in the first case : paleness, coldness of surface, smallness of pulse, trembling of the limbs and trunk, and oscillation of the eyes, and an absence of abdominal distension. The bloody stools recurred during the night, but in diminished quantity. At one o'clock, he was in a worse condition than his brother ; the pulse was lower, being only 112 ; there was great drowsiness. In the morning, he swallowed some spoonfuls of milk, but did not suck well. He was observed to be very lean ; in this respect resembling his brother. On the 1st of February, at 9, a.m., I made the following report.—From yesterday, to one o'clock this morning, he has only had two small bloody evacuations,—the last being between five and six o'clock. As yet, he has had no

normal stool; he has taken the breast, on several occasions, with sufficient eagerness; the pulse is 120; the animal heat is everywhere sufficient; and nothing particular can be observed in the other functions. During the day, he began to have yellow stools, which continued on the following day, on which he took the breast with avidity. On the 2nd of February, the pulse was 104, and the visage had improved. A cure was accomplished as promptly, and as completely, as in the case of his brother.

The two cases just detailed, are, I believe, unique. Two twins were simultaneously effected with a disease so rare as *melæna*. It cannot have been the double pregnancy which predisposed these infants to this occurrence. It is evidently to their similarity of organization that we must attribute their simultaneous seizure. What other cause can be assigned? The health of the parents was faultless, with this exception,—that, during the three months preceding marriage, the mother had *amenorrhœa*. No member of the maternal or paternal families had been subject to hæmorrhages. The pregnancy was auspicious; the labour, though a little difficult, was not more so than is common with *primiparæ*; the twins were neither pale nor plethoric, they were sufficiently strong; the placenta and the chord presented nothing remarkable; and the meconium was not long in being evacuated. In fact, there was no assignable cause, predisposing or accidental, excepting the probable exaggeration of the vascular network of the intestine; and, perhaps, the tumefaction of the spleen, observed in one of the children by the distension of the left hypochondrium, can afford a satisfactory explanation of the hæmorrhage.

The symptoms and progress of the disease in the twins, presented great similarity. The only difference consisted in this,—that the elder had intestinal hæmorrhage only, and that of very short duration; while, in the second, it was longer, and gastric as well as intestinal. In spite of the abundance of the sanguineous discharge, the celerity with which the infants became re-established was remarkable; and the quickness with which the gastro-intestinal mucous membrane resumed its natural functions, was very striking. Twenty-four hours had not elapsed till digestion, in the elder, was completely re-established; a fresh proof that the affection is neither the result of the rupture of a vessel, nor of any serious alteration of the mucous membrane. The prompt restoration of the assimilative function points out to the practitioner the impropriety of allowing the infant to be long without nutriment; a point which, if neglected, might cause the little patients to perish from syncope or inanition.

The recovery of the twins was complete and satisfactory: they had no relapse. A paleness certainly remained for a long time, as an evidence of the excessive hæmorrhage.

When one of the twins was vaccinated, an abundant flow of blood issued from the prick of the lancet. This symptom of a predisposition to hæmorrhage, is worthy of special notice. I believe that those infants who have such a tendency, but have the good luck to escape *melæna*, ought to be preserved from the risk of blows, scratches, the application of leeches or blisters, the evulsion of teeth, and, in a word, from all those causes capable of bruising the soft parts, and abrading the skin or mucous membrane.

It is not easy to say why, in some children, recovery should be complete; and why, in others, the loss of blood should be followed by a state of chlorosis and debility. From an examination of the facts, I am led to believe, that when the complaint is in a state of chronicity, there exists especial danger in such children as are ill-fed, congenitally feeble, or the offspring of unhealthy parents. Dr. Rahn-Escher's patients were extremely delicate, and ill supplied with aliment; for, in place of receiving their nourishment from a good nurse, they were fed on soups and cow-milk.

III. SYMPTOMS.—The precursory symptoms are thus described by Dr. Rahn-Escher:—An infant, on the day of its birth, slept almost continually; he changed his colour frequently; was seized with convulsions of the limbs and muscles of the face; deglutition was difficult, and often excited nausea. On the following day, hæmorrhage set in. In another instance, slight agitation expelled the colour from the whole body, but especially from the face; and, beyond this, there were no symptoms of approaching disorder. Another infant was seized, four days after birth, with yellow watery stools, convulsions, paleness of countenance, and great prostration of the vital powers; respiration was spasmodic; the abdomen was very slightly tympanitic, but without heat or tension; he appeared to have a little pain, especially before each evacuation. The bleeding showed itself upon the evening of the same day. When hæmorrhage has once set in, it is almost invariably very abundant. The infants may be said to swim in blood; their linen is soaked in it; the stools follow at near intervals, and contain a great quantity of blood, which is frequently well coloured, and rich in crassamentum, and sometimes liquid, or at other times mixed with numerous large clots. The first stools may be composed of a mixture of meconium and blood; but those which follow, almost always consist of pure blood. Hæmatemesis is rarer than hæmorrhage; but perhaps it is also more considerable: children have had from eight to twelve attacks of vomiting of blood. Etlinger quotes the case of a little patient who passed more than a pound of blood in vomiting and in stools. Though the hæmorrhage is generally abundant from the commencement, yet sometimes, for one or two days, simple striæ and stains of blood are seen in the linen. Vomiting, along with bloody stools, is a little more frequent than intestinal hæmorrhage; the former being in the proportion of 8, and the other of 7 to 15. In the cases which I have perused, hæmatemesis never existed alone. Sometimes it was more abundant than intestinal hæmorrhage, but it always accompanied it. Hesse gives two cases in which there was only hæmatemesis.

The hæmorrhage usually attains its maximum at a variable period within the first twenty-four hours of life, and ceases upon the first or second day; but it may continue up to the fifth day, and even later. Such cases, however, are rare. The following is an analysis of seventeen cases:—

No. of cases.	Duration.	No. of cases.	Duration.
1 . .	Nine hours.	1 . .	Five days.
3 . .	One day.	1 . .	Seven days.
1 . .	Thirty-six hours.	1 . .	Eight to ten days.
9 . .	Two days.		

A large and prolonged loss of blood, in a being so fragile as the newly-born infant, cannot take place without the whole system being profoundly involved. At the moment when the hæmorrhage takes place, the infant becomes deadly pale. The pallid hue is accompanied by coldness of the extremities, debility, loss of plumpness, extreme smallness of pulse, inequality of respiration, and occasionally convulsions. There are almost no local symptoms, excepting inability to suck; there is nothing remarkable in the state of the mouth or abdomen, the latter being neither painful nor distended.

Dr. Rahn-Escher has insisted much upon another series of symptoms, the consequence of enormous loss of blood. The subjects of the cases collected by him remained lean, pale, bloated, weak, flabby, very prostrate, affected either with diarrhœa or constipation, and subject to convulsions. One had symptoms of rachitis; another sank from *tabes mesenterica* and *hydrocephalus*, at the age of one; and a third, when one year old, was not re-established, still preserving a deadly paleness.

IV. PROGNOSIS.—In analyzing the cases of authors, I have satisfied myself that perfect recovery was more frequent than any other result. The fol-

lowing figures throw some light upon the measure of seriousness of this disease. It is to be observed, that the cases of Billard are not embraced in this *résumé*.

In twenty-three cases, in which mention is made of the termination of the disease, the issue was good in twelve, and bad in eleven. Nine of the first class of infants were completely cured; the three other cases lapsed into cachexia. Of the eleven which died, death took place rapidly in nine, and slowly in two. It appears, then, that we cannot adopt, as literally true, the words of Pechlin, though nevertheless they contain something of the truth: "*In pueris, et alvi et renum cruentas fluxiones minus adhuc habere periculi, et impunè ferri trepidantibus ad cruoris præsentiam matribus.*" Hesse maintains that, in certain cases, the hæmorrhage may be considered as the salutary crisis of a plethoric condition. He believes that the melæna of infants is not more serious than the melæna of adults; an opinion in which I cannot concur. To compare infantile melæna with melæna in adults, we must select cases, in which the hæmatemesis and intestinal hæmorrhage constitute the whole disease, and are not mere symptoms of a cancer of the stomach, of an organic affection of the liver, or of a deterioration of the blood, such as we see in severe eruptive, typhoid, or yellow fevers.

When hæmatemesis takes place in the adult, without the existence of the morbid conditions specified, there is almost always a restoration to health, however abundant the hæmorrhage may have been. I have seen adults vomit several pounds of blood, and rapidly recover. Dr. Odier, a celebrated physician of Geneva, in his *Manuel de Médecine Pratique*, 2nd edition, remarks, at p. 121, "In general, melæna, such as we see in this place, however frightful in its aspect, is never a very dangerous disease, unless some complication exist."

V. DIAGNOSIS.—The diagnosis is not always so very simple as might be imagined. The hæmorrhage may be internal; in which case it is only by studying the general symptoms, that one can make out the nature of the disease. Sudden paleness, smallness of pulse, and debility, may lead us to suspect that hæmorrhage has taken place; but there is nothing to prove that the bleeding is from the intestines. On the other hand, when the hæmorrhage is external, it cannot always be traced to the gastro-intestinal canal. Hesse has treated this subject very minutely; and we cannot do better than quote, almost textually, his description. He speaks of two kinds of hæmorrhage: the one true, and the other false, viz., *hæmatemesis et melæna vera*, and *hæmatemesis et melæna spuria*. The first of these is that which we have described; in the second, the blood comes from the supra-diaphragmatic portion of the alimentary canal. In the latter, the accumulation of blood in the stomach or intestine, may be the result of different causes,—viz. 1st, Operations on the mouth, the nose, or the pharynx, such as the operation for hare-lip, or division of the frænum of the tongue, when performed by inexperienced persons; 2nd, Spontaneous hæmorrhage from the mouth, pharynx, nasal fossæ, bronchial tubes, or lungs. All these kinds of hæmorrhages, with the exception of epistaxis, are very rare in early infancy; but, according to Brebis and Vogel, they may be the result of compression of the neck during difficult labour. 3rd, Swallowing of blood by the infant during birth. This cause was noticed by Burgel, an old observer. Schmitt makes a similar remark. Stellwag has seen a new-born infant, (whose mother had had hæmorrhage during its birth,) with blood, not only in the mouth, but also in the intestine, mingled with the meconium. Finally, the blood may proceed from the mammæ of the mother or nurse, when they contain little milk, and the infant sucks with avidity; or the blood may be drawn from excoriations of the mammæ.

The diagnosis, though very simple when the blood in the stomach is the

result of a surgical operation, or of sucking, is sometimes more difficult when it proceeds from spontaneous hæmorrhage from the nasal fossæ, or the supra-diaphragmatic part of the alimentary canal; but in new-born infants this is an extremely rare form of hæmorrhage. When there is doubt, one of the best means of distinguishing true from false melenæ, is to study thoroughly the concomitant and consecutive symptoms. In the false, they may be said to be absent, or advantage may seem to arise from the hæmorrhage; whereas, in the true melenæ, the serious consequences are observed, which I have already enumerated.

VI. TREATMENT.—The cases which have enabled me to give a nosographic sketch of this disease, are very incompletely reported, as regards the treatment. In several instances, there have merely been administered soothing or gently laxative preparations, such as oil of sweet almonds and manna. This plan must have been adopted with a view to allay irritation of the mucous membrane, and to remove acrid matter from the bowels. In other cases, the treatment has been that directed against hæmorrhages in general, such as the use of the mineral acids, cold, and astringents. Dr. Rahn-Escher gave to one patient diluted sulphuric acid in cinnamon water, and to others he administered an emulsion, containing alum and musk, ordering, at the same time, fomentations of vinegar and quinine: cold compresses to the belly and astringent clysters have also been used. In my cases, their employment constituted the only treatment.

To sum up, I believe that, in the almost entire inability to moderate, by means of internal remedies, any considerable amount of hæmorrhage, we must be contented to place the infant in a cool and frequently changed atmosphere, and to apply the cold compresses to the belly, whilst the extremities are kept in a state of comfortable heat. Clysters appear to be useless: they fatigue the child, and are apt to cause stools; and, even when this latter result is obviated, they operate at a great distance from the seat of the disease, and which is in the large intestine. If the pulse be very feeble, and the infant be threatened with syncope, there may be given some drops of wine, a little of the liquor of Hoffmann, peppermint water, cinnamon water, or other suitable stimulant. Perhaps urtication might prove beneficial. In all cases, it is necessary to sustain life by giving some spoonfuls of woman's milk cold, or by placing the child to the breast, if it have strength enough to suck: one or other must be done, even before the hæmorrhage has been completely stopped. For symptoms of anæmia which may succeed, it will be necessary to subject the infant and his nurse to a somewhat lengthened course of chalybeates.

DR. DELASIAUVE ON THE TREATMENT OF EPILEPSY.

The *Annales Médico-Psychologiques*, for March 1848, contain the conclusion of an article on the above subject, by Dr. DELASIAUVE, physician to the Bicêtre; from which we extract the following practical summary.

The *hygienic treatment* of Epilepsy is of equal importance with, if not of greater than, the medical, in order to diminish the frequency of the attacks, and thereby weaken the periodical necessity for their recurrence. Change of climate (recommended by Hippocrates), is not always practicable; but when possible, a mild temperate region, not much exposed to changes of weather, should be preferred. It has been observed, that epileptic attacks are more frequent in the hottest and coldest seasons, or when there are sudden or frequent changes of temperature.

The dietetic regimen is, without doubt, of the greatest importance in the hygienic treatment of epilepsy. Galen interdicted all aliments of a viscous or flatulent nature, or which could induce a determination of blood to the head, as well as wine. Tissot considers moderation in diet as the basis of cure; and says, that an abundance of aliment is poisonous to epileptic patients. The

substances which he prefers are white meats, fresh-water fish, leguminous plants, the most digestible farinaceous food, perfectly ripened fruits, and sometimes a little tender beef or mutton: he rejects those meats which produce much blood of a highly stimulating quality, as well as eggs, pastry, fried meats, goose, duck, pork, and fat salt meats in general, eels, skate, haddock, craw-fish, truffles, artichokes, asparagus, celery, and parsley. The only drink which he allows is water: and he says that several patients have become incurable, from not having abstained from wine. The opinions of Galen and of Tissot are followed by most authors,—who differ more in the details, than in the general principles.

The diet is naturally susceptible of numberless variations, depending on the temperament or idiosyncrasy of individuals, their constitution, and their usual mode of living. It is certain, however, that food, excessive in quantity, or of too stimulating or nutritious a nature, is liable to produce a greater frequency of attacks, by imparting to the blood a dangerous state of excitability. This is especially observed at the Bicêtre, in those patients who have been permitted to visit their families, and have there had an opportunity of indulging their appetites.

The author believes, with Tissot, that the diet of epileptic patients should consist rather of vegetable than of animal food, especially fresh leguminous plants, refreshing fruits, and prunes. Total abstinence from wine he considers too rigorous a privation; and it is sometimes administered, without detriment, to his patients. It should be of the mildest quality, and taken in moderation. The most usual drinks, in the Bicêtre, are cold milk, skimmed milk, with sugared water, lemonade, whey, and other refreshing liquids; small beer does not appear to have been tried, although its nutritive and diuretic properties would seem to render it useful as an ordinary beverage. Persons who are liable to be attacked at night should take a very light evening meal, so as not to increase the state of cerebral plethora, so favourable to an attack, and which sleep always tends to produce.

It is a point of great importance that the free exercise of the corporeal functions should not be neglected; and especially that the cutaneous exhalation should be maintained in a healthy condition, so that the blood, being determined to the exterior of the body, congestions may not form in the internal organs. Cleanliness should be particularly attended to: and baths and frictions of the surface from time to time employed. The clothing should be sufficiently warm, but permitting the skin to be comfortably moist, and not impeding the free motion of the limbs. Tight cravats, and those prisons which are called stays, must be avoided as highly injurious. The hair should be cut short; and straw hats should be worn, as they offer no impediment to the passage of air or perspiration. The patient should sleep on a pillow of sufficient height to facilitate the return of blood from the head, and to prevent congestion.

The state of the digestive functions demands great attention. Constipation is injurious, as it reacts on the encephalon, and the straining which it necessitates are productive of harm. It is to be treated by clysters and gentle laxatives, such as veal broth with herbs, Seidlitz water, and prunes.

The menstrual periods in women are liable to be attended with an aggravation of the epileptic symptoms; and the catamenial flow should be aided by the application of leeches to the vulva, fumigations of the sexual organs, and mild emmenagogues. Abstinence from sexual intercourse is imperatively necessary in males, for the analogy between the nervous excitement attending this, and the state of emotion which causes epileptic attacks, is very close. Those who practise masturbation are peculiarly liable to attacks; and a case is given by Dr. Delasiauve, showing the effect of sexual intercourse in repeatedly reproducing epileptic fits, even after apparent recovery.

The life of epileptic patients should be tranquil, and free from troubles; and anything tending to excite the mental emotions should be strictly

avoided, as having a tendency to increase the intensity of their disease. These unfortunate persons are generally susceptible and irritable, especially at the commencement and end of their attacks: their attendants, therefore, require to exercise extreme care in their management. By kindness and good management, the excessive mental agitation which they experience may be moderated, so as to enable them to pass insensibly over these critical moments; but by brutality and rigour, the violence of their malady is almost certainly increased.

Exercise is highly salutary for epileptics. An inactive, sedentary life, weakens the organism, and increases the morbid predisposition. Sufficient attention does not seem to have been paid to this subject by modern authors, although Hippocrates, Galen, and most of the ancients, attach great importance to it. Tissot and Portal scarcely mention it. The opinion of Esquirol, not altogether unexceptionable, is expressed in the following words:—"He (the epileptic person), should devote himself to agriculture, should ride on horseback, and exercise himself with gymnastics, swimming, and fencing." Among modern authors, M. Ferrus has paid most attention to the hygienic influences which we have mentioned; and he is especially partial, among these, to agriculture and gardening. These labours have not only the advantage of promoting intercourse between the patients and their fellow-men, and of calming the passions of the mind; but they also diminish the erethism of the nervous system, by the refreshing exposure to the sun and air. The beneficial effects of this treatment in cases of mental alienation, and especially in epilepsy, was most remarkable at Bicêtre, when it was substituted for the pernicious state of idleness in which the patients were formerly kept. Not only are the good results of corporeal labour observed in hospital patients, but also in private practice, among patients of a higher rank in life; and M. Ferrus relates some cases, in which the happiest results were produced by labour, joined with change of climate.

M. Ferrus does not regard the advantages which result from exercise, as exclusive of all other hygienic measures. In the Bicêtre, he introduced various reforms, such as not permitting the patients to go out, and indulge their appetites, whenever they pleased; and introducing variations in the diet, to suit the peculiar constitution of each individual. All kinds of exercise are not equally proper; riding, swimming, and even fencing, recommended by Esquirol, are not without danger. The same objection applies to those labours which require excessive exertion, or the stooping posture, or exposure to excessive heat or light.

It is important, moreover, that the labours in which epileptic patients are employed should vary, and be followed by intervals of relaxation. Intellectual and artistical occupations, as reading, drawing, music, light compositions, the elements of certain sciences, as chemistry, botany, physics, etc., are, when not carried to the extent of fatiguing the brain, productive of satisfaction; and, far from weakening, they sustain the moral powers. They change the gloomy and irritable feelings into gaiety and calmness, and diminish the predisposition to epileptic attacks.

These hygienic modes of treatment have hitherto not been sufficiently appreciated, and have not yet been perfectly carried out. More attention has been paid to the medicinal treatment; but important improvements have been made in this respect within the last few years. At the Bicêtre, especially, much good has been effected; but the beneficial measures above mentioned, have not been capable of being fully carried out, owing to the impracticability of classifying the epileptic patients, and separating them sufficiently from the other inmates. In the department occupied by the children, however, much happier results have been produced. With them, the whole day is occupied in an alternation of work and play, at fixed hours. In school, they are divided into classes, according to their capability, under the direction of a master, M. Vallée, of equal zeal and ability, and intelligent assistants.

Those who are able, read, write, study arithmetic, geography, grammar, drawing, painting, etc. Those who are less advanced, are instructed in the more elementary branches; and they are gradually brought to discern the sensible properties of bodies, colours, sounds, smells, tastes, shapes, etc. Marching, drilling, music, and dancing, form part of the education; and concerts are frequently held. By due alternation of intellectual exercise with labour and amusement, the over-working of any of the powers, mental or bodily, is avoided, and they pass from one to the other with a sort of ardour.

The utility of this mode of treatment has been questioned by some, who, wrongly supposing that the partisans of education hope to fill up the chasm which separates these degraded beings from ordinary men, are contented with always perceiving an abyss between the two states of being, which would nullify the value of education. But no one pretends anything so absurd; that which already exists can only be modified. Is it to be said, because the idiot, deprived more or less of mental faculties, and of the means of acquiring common ideas, cannot be raised by education to a very high position in the scale of humanity, that no useful change can be effected in him? In the midst of his deeply degraded state, the idiot preserves his senses and physical strength often equal to that of other men; he has also instincts and moral feelings, and artistical powers, more or less developed. From the germs of these powers, by multiplying external impressions around the idiot, some sentiments of sociableness may be developed, and he may be brought, by imitation and experience, to practise several manual arts. Gymnastic exercise is of great utility in weakening the force of the brute passions, and correcting the irregular appetites. By communication with the surrounding world, and by the mutual relation between the idiot and those to whom his education is intrusted, his sluggish imagination is roused to notions of good and evil, of pleasure and pain; and the kindly feelings, and a sense of his own importance, are developed. From being an embarrassing burthen to society, he becomes supportable, and even useful. Thus an immense amount of good is effected.

This system of educational treatment is doubly advantageous in epileptic children. The moral and physical expansion of their faculties tends to diminish the intensity and frequency of the attacks; and no less, by equalizing their influence, to remove the state of torpor into which the patients are thrown, to overcome the feeling of gloom and irritability which is caused, and to prevent the threatening depression of the muscular powers. In the Bicêtre, may be witnessed the changes which have been effected in the condition of epileptic children, since the introduction into that establishment, within the last four or five years, of labour, study, gymnastics, and various amusements. At present, those most afflicted with fits, are merely regarded as patients confined to bed by indisposition, and prevented from joining in the common exercises. In most of the others, the attacks only appear at greater or less intervals; their countenance has lost its gloomy expression, their manners have been softened, and their mischievous, angry, and quarrelsome dispositions have been replaced by tranquil and benevolent feelings. Some of these patients, apparently cured, even perform independent services in the house.

Not a little of the value of these exercises is derived from the children being together, and from the salutary emulation, which tends to stimulate the most sluggish; while isolation and solitude, on the contrary, deprive the mind of its resources. A striking example of this is shewn in the case of a boy residing in the neighbourhood of the Bicêtre, who was seized with epileptic attacks three or four times a day. No benefit seemed to result from any kind of treatment, though rigorously persevered in for a month, until permission was obtained for him to be admitted, during the day, into the school of that institution. At the end of six weeks the attacks had entirely ceased, and he recovered his usual good condition and vivacity.

Such results are worthy of attention, and tend to shew the importance of keeping the mental and bodily faculties of epileptics in a state of activity. It appears, however, to be not always an easy matter to attain this end; for, in the departments of France, the doors of asylums are closed against epileptic patients. Dr. Delasiauve remarks, that the formation of private establishments would be desirable for those whose station in life is opposed to their seeking aid from hospitals. Many epileptic patients in the higher ranks of society have their disorder aggravated by idleness.

The necessity for the existence of such establishments as are here proposed, was not so evident, as long as the treatment of Epilepsy was confined exclusively, so to speak, to therapeutical means: patients could receive attention at home. They become, on the other hand, reasonable and indispensable, from the moment that the system comes into operation, which regulates, by wisely-contrived combinations, the labours of the different periods of the day, and derives its chief effect from the association and mutual relations of the individuals, to whose treatment the combination of means at disposal is applied.

Treatment during the Fit.—In most cases, as is observed by Tissot, the treatment is reduced to taking care that the patient do not hurt himself; at least, less attempt is made to retard the epileptic paroxysm, than to bring the patient safely through it. One of the first things to be attended to is, to remove the epileptic from the danger of a fall on a hard substance, or in a dangerous place. He should be laid horizontally on a bed,—this position affording the greatest facilities for restraining him. It does not appear so necessary to hold his hands as is generally imagined, for he scarcely possesses the power of directing against himself movements of which he is not conscious. A more important point to be attended to, is the removal of clothes, cravats, etc., which, by impeding the action of the organs of circulation or respiration, may tend to cause cerebral or pulmonary congestion. The head should be elevated on two or three pillows, to diminish the flow of blood to that part. It is well also to incline the patient to one side, to facilitate the escape of saliva, which is poured out in great quantity into the mouth, and would threaten an impediment to the passage of air into the lungs. Beds have been contrived, with cushioned boards projecting several inches above the level of the coverings. When placed in these there is less danger of the patients falling out, or injuring themselves in their convulsions. But inconvenience may arise from their being hidden from the view of their attendants; for some epileptic patients have a tendency to turn on their faces on the approach of the paroxysm, and may thus perish of asphyxia without being perceived. Epilepsy frequently terminates life in this manner. The danger of laceration, or even amputation, of the tongue, is to be guarded against. The best means is to insert something between the teeth at the time of the attack,—such as a wedge of wood, or a piece of linen, such as a handkerchief or napkin, rolled sufficiently firm. It would be proper, in hospitals, to observe those individuals who have this propensity, and to give their attendants the necessary instructions for preventing it: but the evil is often accomplished before the means for its prevention can be employed. It is vulgarly thought necessary to forcibly open the thumbs. This is of no manner of use; and is even dangerous, by reason of the efforts which are often required to overcome the resistance of the patients.

To favour the return of the epileptic patients to consciousness, recourse has been had to strong scents, to ammonia, ether, assafetida, etc.; sternutatories have also been used. In general, these means have been condemned as useless, and likely to produce mischief. "To be convinced of their danger," says Tissot, "one only has to remember that sneezing commences by a suspension of the respiratory act, which accumulates the blood in the vessels of the head, where there is already too much; and that, moreover, this movement itself is a convulsion, which by no means conduces to the

cessation of others." Portal, however, thinks that no harm can arise from making the patient smell the fumes of burnt feathers or leather, simple or aromatic vinegar, tincture of castor, assafœtida, etc.

But the attention of the medical attendant should be especially directed to the subsequent symptoms. Ordinarily, these are confined to a sense of fatigue, of weariness, and weight in the head, and disappear of themselves with the aid of rest, some calming or cordial drink, and pediluvia with mustard; but they often require more energetic treatment. Very frequently, attacks of Epilepsy induce congestions of the brain or lungs, and dangerous, or even fatal, apoplexy. In these cases, especially where the attacks consist of a number of frequently repeated paroxysms, the indication is to practise large bleedings; and it is not generally known to what an extent these may be borne. Leeches and cupping may be useful as aids to general bleeding, but are of themselves insufficient, except when the attacks are so mild, as to cause no apprehension of a fatal termination. Purgatives and enemata are slow and uncertain in their effects. Dr. Delasiauve has generally seen benefit derived from tepid baths, repeated several times a day, for two hours at a time. External revulsives must not be neglected,—such as sinapisms, or large flying blisters, which powerfully aid the effects of depletion. The utility of cold applications seems doubtful; they are certainly beneficial in acute affections of the brain; but there is only a very distant analogy between these, and the comatose state which succeeds epileptic convulsions.

ANÆMIA AND ITS CONSEQUENCES.—ENLARGEMENT OF THE THYROID GLAND AND EYE-BALLS.—ANÆMIA AND GOITRE, ARE THEY RELATED?

Dr. JAMES BEGBIE, of Edinburgh, has communicated a very valuable memoir, with the above title, to the *Edinburgh Monthly Journal* for February, 1849, p. 495. The author proposes to answer the question,—“*Are Anæmia and Goitre related?*” by a review of cases which have come under his own observation: but he introduces them by some general statements, strongly tending to confirm the idea that the two affections are related. He states, for example, that in countries where bronchocele prevails in an endemic form, the exsanguined countenances, protuberant eye-balls, and other signs of bloodlessness manifested by those affected with the bronchocele, render it probable that both are effects of the same cause,—Anæmia. Bronchocele, we are also told, develops itself rapidly during confinement in child-bed, and undergoes a temporary augmentation during the flow of the menses. Dr. PARRY has often seen goitre follow functional disorders of the heart,—disorders known to depend very frequently on deficient sanguification. It is a form of the *hydrophthalmia* of systematic writers—perhaps that form of dropsy denominated *buphthalmos*, or *ox-eye*, which accompanied the enlarged thyroid gland as a concomitant symptom of Anæmia, in the cases related by Dr. Begbie. He found this enlargement of the globe of the eye, the result of congestion and effusion, intimately connected with that condition of the system in which the blood is deficient in fibrin and colouring matter; and yielding to a plan of treatment adapted to such a state. We subjoin the cases without much abridgment.

“CASE I.—A lady, aged thirty-two, one of a numerous and healthy family. Married at the age of twenty-four, and continued to enjoy for many years a full share of health. She had never been pregnant. For some years before I saw her, she had suffered from continued mental distress, and had laboured under profuse leucorrhœa, by which her general health was much affected. For the last four or five months she had complained of inordinate pulsation of the heart, which was greatly increased by excitement, by going up stairs, by walking fast, by every thing, in fact, which hurried the circulation. At these times her face, usually pallid, flushed, and she became confused. The

eyes presented an unusual appearance, being prominent and staring, giving a wild and startled expression to the countenance; a much larger share of the albuginea was seen than in the normal condition; the membrane looked dark at a distance, and when examined near, was found to be pervaded by vessels—many of these were also seen apparently in the sclerotic coat itself when examined through a lens; there was no dimness of vision, but a painful sense of distension of the eye-balls; all this was increased on the occasion of palpitation, or when the face was flushed. Simultaneously with the appearance of these symptoms, an enlargement of the thyroid gland manifested itself. It was soft, smooth, and elastic, and of equal character throughout, presenting the form of the hypertrophied gland, and had rapidly developed itself to its present size—that of three or four times the magnitude of the gland in health; but it was subject to remarkable variations in this respect, according to the state of mind, rest, or palpitation. It appeared to be highly vascular, and conveyed to the touch the sensation of an erectile tumour. It had suffered no diminution from the continued application of iodine. The pulse at this time generally ranged from 100 to 130; it was small and jerking, and, on the occasions of excitement, accompanied by a thrill. The inordinate action of the heart was felt beating in the head, so as to produce a state of almost constant watchfulness. There was much breathlessness and frequent faintness, severe headach, vertigo, and tinnitus aurium. The contraction of the ventricles seemed somewhat prolonged, and it was attended, especially under palpitation, by a soft bellows-murmur at the aortic orifice, and a corresponding *bruit* was heard in the carotid and other large arterial trunks; there was no extended præcordial dulness, neither was the impulse of the heart very remarkable. Along with these symptoms there was a high degree of nervousness, and much derangement of the digestive functions. The catamenial discharge was imperfect and irregular. A variety of treatment had been for some time pursued for the relief of these symptoms. Blood-letting had been resorted to, with that measure of benefit which Dr. Marshall Hall has so well described and accounted for in such circumstances,¹ digitalis, mercury, etc., but all in vain. The appearances and signs were manifestly those of impoverished blood; and, in accordance with this view, treatment was adopted, which, after many months, issued in restoration to health. It consisted of large doses of the carbonate of iron, with gentle aloetic purges, soothing doses of hyoscyamus, a full diet of animal food, a change of air to the sea-side, and regular passive exercise in the open air. Under this plan the general system gradually became renovated, the leucorrhœa subsided, the goitrous swelling disappeared, the eyes regained their wonted character, the complexion its accustomed hue, and the heart and arteries their normal heat.

"CASE II.—I was consulted by Dr. Beilby, in the winter of 1846, in the case of a lady aged thirty, married, and the mother of two children. The commencement of her illness was marked by long-continued and frequent hæmorrhage from internal piles, often for weeks together, to the amount of 5 or 6 oz. daily, and extending over a period of between three and four years, during a long period of which she had been subjected to much anxiety. The hæmorrhage at last ceased on the occurrence of an abscess near the anus, and never returned; but it left her exsanguine. She had too long disregarded the repeated loss of blood, and only became alive to her situation when her attention was arrested by the violent palpitation of the heart, with throbbing and giddiness of the head, which occurred almost immediately on the cessation of the hæmorrhage. The catamenia continued regular. On my first visit, twelve months after the appearance of these symptoms, the large and prominent eyeball, which I cannot well describe, but which once seen cannot be readily forgotten, the dark discoloured eyelid, and the pallid complexion which bespeaks poverty of blood, induced me to examine the thyroid

¹ On Loss of Blood. Med. Chir. Trans. vol. xiii, p. 140.

gland before listening to the heart's action, or feeling the pulse at the wrist. It was tumid and hypertrophied, especially the lateral lobes, which were enlarged to four or five times their normal bulk, and had long resisted the use of iodine, which had been administered in large measure, and, according to the experience of the patient, with manifest disadvantage. The tumour, as in the former case, was subject to remarkable variations, according to the state of the circulation, augmenting and decreasing as excitement or rest prevailed. She felt very sensitively the marked change in her expression, from what she termed the protruding eyes, and experienced at the same time great discomfort from the sense of pressure, as if the eyeball were too large for the orbit. I need not repeat a description of the symptoms—the throbbing of the head, the ceaseless impulse of the heart, the anæmic murmur of the ventricle, the continuous rushing sounds in the veins of the neck and in the thyroid swelling, the whiff of the carotids, or the jerking of the pulse at the wrist. One set of symptoms I may notice in the words of the patient herself:—‘A very painful sensation was experienced on leaving the horizontal posture, violent cough came on, causing retching and an agonizing pain in the head, seemingly caused by an extreme rush of blood to the brain, with a sense of bursting. This was relieved on resuming the horizontal posture, and taking food. As a preventative, I was forced for some months to breakfast immediately on awaking from sleep, lying perfectly still in the posture in which I awoke, as even a slight raising of the head would occasion distressing pain. After eating I could rise with impunity.’ These are manifestations of the enfeebled brain, and part of the train of symptoms induced by impoverished blood. Nothing remained but to recommend the simple, safe, and satisfactory treatment of the former case. It was begun, and persisted in for some time, and attended by beneficial results; it was interrupted, however, from various causes, so that the success has not been equal to its known efficacy. Still, however, at this time the patient is manifestly improved, the thyroïdal swelling is greatly reduced, the protruding eyeballs much less conspicuous, and all the signs which accompany the anæmic condition gradually disappearing. She can walk many miles without breathlessness, and lie down and rise up without pain or confusion.

“CASE III.—A third sufferer from anæmia and goitre, I have at this time under my care, in the person of an unmarried lady, aged fifty, who had for a long series of years enjoyed perfect health, till about four years ago, when she became the subject of dyspeptic and uterine derangement. For many months she laboured under profuse and wasting leucorrhœa, when the protracted drain was followed by distressing palpitation, hurried breathing, rapid, feeble, and jerking pulse, pallid complexion, varied by flushing on the least excitement or exertion, great nervousness, disordered secretions, the characteristic eye, and the hypertrophied thyroid of this form of anæmia. The isthmus of the gland was more prominent than in the former cases, but the bulk of the tumour was less than in either. She had undergone a variety of treatment, with varying success, for some years before I saw her for the first time, two years ago. At that time she was chiefly anxious regarding the protuberant eyeballs, and little concerned about the goitre or her general health, which she had begun to think did not admit of remedy. The general and physical signs were those of anæmia; and, believing that the local affection would yield to constitutional treatment, she was immediately placed under full doses of iron (the citrate was the form employed), full diet of animal food, and a moderate share of Bass’s ale. She improved rapidly, but was seized in the autumn of 1847 with severe dysentery, then epidemic in the city. Through this ordeal she struggled, and after a tedious convalescence she regained her former position; the goitrous swelling and the projecting eyeballs appeared to suffer no change during this long illness, neither was the anæmic murmur of the heart and arteries affected by it. She resumed her former treatment, which had been interrupted by the attack of

dysentery; and now, at the close of another twelvemonth, she is greatly improved in health, the thyroïdal swelling is scarcely perceptible, the protuberant eyeball much reduced, the pulse, though rapid and feeble, and still easily affected by exciting causes, greatly moderated, and the breathing much more natural. There are no contra-indications to the continued use of iron and animal food; and a confident expectation may be entertained, that, under the persistent employment of them, the functions of assimilation and sanguification will be restored to health, and the local disorders now dependent on their morbid condition, entirely removed."

Dr. Begbie refers to a paper in the *Dublin Journal of Medical Science*, vol. xxvii, p. 200, entitled, "Observations on a peculiar form of Disease of the Heart, attended by Enlargement of the Thyroid Gland and Eyeballs", by Dr. R. Mac Donnell; also, to Mr. Hill's remarks on that communication (*ibid.* p. 399); and to Sir H. Marsh (*Dublin Journal*, vol. xx, p. 471); and Dr. Graves' remarks (*Clinical Lectures*, II, 193) on similar cases. Dr. Begbie claims these cases as illustrations of anæmia, and thinks the Irish physicians have erred in regarding them as examples of a peculiar cardiac disease.

With regard to the treatment of anæmia and its secondary disorders, Dr. Begbie makes the following remarks:—"Our first object, in the treatment of anæmia and its secondary disorders, is to ascertain the exciting cause, and having arrested or removed this, to improve the condition of the blood by the free use of the preparations of iron, and a liberal allowance of animal food, unless there are complications of such a kind as to contra-indicate their use. Wine is seldom necessary, and generally hurtful; but porter or ale may be taken with advantage. A change of air, travelling, and passive exercise, also do good. Persistence, however, is absolutely necessary both on the part of the patient and his attendant. *Iron*, the chief means of cure, in order to be effectual, must be continued for months, and perhaps, after an interval, again and again renewed. It will not, however, disappoint our expectations; for whether it act by invigorating and improving the digestive and assimilative functions, or by restoring and augmenting the red particles of impoverished blood, there is really no remedy in the hands of the physician, whose virtues have been so thoroughly tested, and so deservedly recommended to our confidence and trust."

PATHOLOGY AND TREATMENT OF SENILE DEAFNESS.

Mr. JOSEPH TOYNBEE has contributed an important paper on this subject to the *Edinburgh Monthly Journal* for February 1849, from which it appears very probable that the deafness of old age is not the mere effect of decay. He says: "The results of my experience tend to show, that decline of the power of hearing in old age is dependent upon the influences to which aged persons are frequently subjected: namely, the prolonged stay in warm and close rooms, the avoidance of the open air, the cessation from bodily exertion, the want of attention to diet, and to the healthy performance of the functions of the skin; and that it does not depend upon the decline of nervous power, or upon an atrophy of the tissues which compose the organ of hearing. On the contrary, an extensive field of post-mortem investigation has demonstrated, that the *most frequent* pathological condition found in cases of senile deafness, is a considerable increase in the substance of the mucous membrane lining the tympanic cavities; and that the evidences of atrophy of the tissues are very rare. The pathological condition *second* in frequency in these cases, is a thickening of the *membrana tympani*; and the *third* consists in the presence of bands of adhesions, which connect together various parts contained in the tympanic cavity, and these contents to the walls of the tympanum. The examination, during life, of elderly patients suffering from deafness, quite agrees with the results of the pathological researches. Thus, while the external surface of the *membrana tympani* remains smooth and shining, its substance is seen to be whiter than natural. Upon attempt-

ing a forcible expiration with closed nostrils, air is heard, by the otoscope,¹ to enter the tympanic cavity, but it produces an unnatural sound; the hearing is generally worse during an attack of cold, and in dull weather."

Mr. Toynbee details cases in illustration and confirmation of his views, of which the following are abstracts:—

"CASE I.—Mrs. L., æt. 87, had been deaf for six years previous to her death.

"DISSECTION I.—*Right Ear*.—The external meatus was dry, and did not contain any cerumen. *Membrana Tympani*.—The fibrous layer is white, and slightly thickened; it is more concave and tense than natural. *Tympanic Cavity*.—The mucous membrane appears to be healthy. There are bands of adhesion which connect the ossicula with one another, and with the wall of the tympanum. These adhesions may be divided into two distinct sets: one is placed between the incus, and the inner wall of the tympanum and the stapes; the other connects the head of the malleus, and the body of the incus, to the external wall of the tympanum. The first-named set consists of two portions. One of these, measuring half-a-line from above downwards, and three-quarters of a line from without inwards, connects the anterior part of the long process of the incus, to that part of the inner wall of the tympanum which is posterior to the fenestra ovalis. This band is connected by several small ones to the superior surface of the stapes, and also to a fine membrane which extends between the two crura of the latter bone. These small bands are so firm, and tightly stretched between the stapes and the larger band, and between the incus and the inner wall of the tympanum, before mentioned, as to keep the stapes more fixed than natural. There are also adhesions between the upper surface of the crura of the stapes, and the margin of the *fossa fenestræ ovalis*. The other part of this band extends, from the posterior part of the long process of the incus, to the inner wall of the tympanum, posterior to that just described; this band is also firm and tense. The second set of adhesions passes from the head of the malleus, and body of the incus, directly outwards, connecting them to the osseous walls of the tympanum superior, and posterior to the attachment of the membrana tympani. It is interesting to consider what effect these bands must have had upon the ossicula and membrana tympani during life. Those which surround the stapes, and connect it to the *fossa fenestræ ovalis*, must have had the effect of impeding the movements of the stapes; and those which connect the long process of the incus to the inner wall of the tympanum, by pulling that process inwards, would probably have been the means of pressing the stapes (attached to its lower extremity) towards the vestibular cavity. The effect of the adhesions between the bodies of the malleus and incus, and the outer wall of the tympanum, seems to have been, to draw those extremities outward; and, in consequence, their inferior extremities inwards. This action upon the malleus is apparent, and may account for the greater concavity of the membrana tympani, which is carried inwards with the long process of the malleus, and is very tense. The base of the stapes is apparently fixed more firmly than natural to the margin of the fenestra ovalis. The membrane of the fenestra rotunda is in a natural state. The membranous labyrinth is healthy. There is rather more black pigment than usual in the cochlea of the left ear; in other respects it is like the right ear, and presents adhesions connecting the ossicula.

"CASE II.—Mr. S. T. died at the age of 87, from an accident. He had been deaf—especially in the left ear—for a considerable period.

"DISSECTION.—*Right Ear*.—The meatus externus is distended with cerumen: the other parts of the ear are healthy. *Left Ear*.—The meatus exter-

¹ An elastic tube, twenty inches in length, each extremity having fixed upon it a piece of ivory or ebony: one orifice is introduced into the ear of the surgeon, and the other into that of the patient, while the latter attempts to make a forcible expiration with closed mouth and nostrils.

nus is full of cerumen ; the membrana tympani is smooth on its surface, but very white ; the mucous membrane of the tympanum is very thick, and the cavity contains a large quantity of dense and tenacious white mucus, which is also found in the mastoid cells. The presence of this fluid, and the thickened state of the internal coat of the membrana tympani, explain the white appearance of the latter. The stapes is entirely concealed by the thick mucous membrane.

"CASE III.—Mr. B. C. died of asthma at the age of 80. He had been very deaf for a considerable period previous to his death.

"DISSECTION.—Both ears presented numerous bands of adhesion, connecting the membrana tympani with the inner wall of the tympanum ; and, by completely surrounding the ossicula, the membrana tympani is nearly concealed. The eustachian tube is healthy throughout.

"CASE IV.—Mr. J. R., æt. 73, died of consumption, and had been deaf for a considerable period previous to his death.

"In each ear the mucous membrane lining the tympanic cavity was so thick, as to conceal the stapes, and to form so thick an investment for the other ossicula, as to prevent their natural form being recognized.

"CASE V.—Mrs. L. E. died of apoplexy at the age of 94. She had been deaf, for several years, in both ears.

"DISSECTION.—*Right Ear*.—The membrana tympani is entirely gone ; but a thick and soft portion of it lies in contact with, and adheres to, the promontory. The malleus has been removed by disease ; but the incus remains attached to the stapes, which latter bone is entirely concealed by the extremely thick mucous membrane. The lining membrane of the mastoid cells is also very thick ; and the upper osseous wall of the tympanum is diseased and soft. *Left Ear*.—The membrana tympani is thick and opaque,—especially at its posterior part. Its upper surface is firmly adherent to the inner wall of the tympanum and the stapes ; the latter being entirely concealed by adhesions. The upper osseous wall of the tympanum is, in several places, carious, presenting large orifices, which allow the dura matter to be in contact with the thick mucous membrane of the tympanum and mastoid cells. One of these orifices measures three lines in length, and two in breadth. The posterior part of the pars petrosa presents a large exostosis. The labyrinthine humours are very small in quantity, and the membranous labyrinth is much atrophied. The base of the stapes projects into the cavity of the vestibule."

CLINICAL DETECTION OF IODINE.

It may be often of service to determine when certain medicinal substances have penetrated into the system ; and, as regards iodine, M. Rayer adopts a very simple procedure at La Charité. A strip of starched paper is moistened with the saliva or urine of the patient, and is then touched with nitric acid, with the effect of producing a more or less intense blue. As regards the urine, however, if the proportion of iodine employed has been very slight, the fluid requires to be evaporated to a 15th, 20th, or more of its volume. So treated, M. Rayer has detected iodine in the urine of a patient in whose case a simple iodine injection had been but once thrown into the knee-joint.—*Bul. de Thér.*, tom. xxxv, p. 410 ; *Brit. and For. Med. Chir. Rev.*, Jan. 1849.

SURGERY.

CASE OF INCOMPLETE REDUCTION "EN MASSE" OF AN INGUINAL RUPTURE.

By JAMES REID, Esq., Surgeon to the Kent and Canterbury Hospital.¹

"The reduction of a hernia in a mass, with its investing peritoneal covering, by the efforts used in applying the taxis, and the appropriate mode of treat-

¹ From the Provincial Med. and Surg. Journal for 24 Jan. 1849, pp. 41-44.

ment, has, until the last few years, rested almost entirely upon the authority of foreign surgeons.

"Mr. LUKE was the first, I believe, in this country, to make the occurrence the subject of a particular treatise.¹ Since his excellent paper, founded on the experience of five cases, was read before the Medico-Chirurgical Society, and published in their 'Transactions', notices of three other cases have appeared in the English journals. The hitherto supposed rarity of the accident has therefore much diminished, and the influence that the probability of its occurrence should exert, during the investigation of an obscure case in which symptoms of strangulation exist, has become more recognized. Under present circumstances, however, every additional case may be viewed with interest, and may assist in confirming or elucidating the information already obtained upon the subject. It is with this view that I am induced to publish the following case of incomplete reduction 'en masse.'

"CASE.—J. H—, a strong active old man, aged 75, was admitted under my care, into the Kent and Canterbury Hospital, with symptoms of strangulated hernia. He had been subject to double inguinal rupture, partly occupying the scrotum, for which he had worn a truss forty years; and more recently to a protrusion, the size of a walnut, at the navel. The right inguinal rupture had appeared some few years after the left, and had troubled him most, having on one occasion become incarcerated for several days, occasioning constipation and vomiting, and being at length reduced with difficulty. Two days previous to his admission into the hospital, he exerted himself more than usual in spearing for eels; feeling afterwards indisposed, he went to bed sooner than usual, and was soon attacked with severe pain in the abdomen, followed by vomiting. He then discovered that the rupture had descended, and made ineffectual attempts to reduce it. The next day he renewed the efforts, applying for that purpose a hot tile, and making pressure upon it. After an attempt continued for some time, the swelling was reduced in size, and he considered that he had returned it, but the symptoms still continued. A medical man was now sent for, who detected a small swelling in the situation of the inguinal canal; an attempt was made to reduce it, and purgatives were administered.

"He was admitted into the hospital forty-eight hours after the occurrence of the first symptoms. The countenance was anxious; there was constant vomiting, accompanied by hiccough; the matter thrown up was the contents of the small intestine; the abdomen was distended, but not tender, except in the immediate neighbourhood of the right inguinal region; there had been no action of the bowels for forty-eight hours. Tongue stained by the matter vomited; pulse of natural frequency, full, intermitting; the radial artery felt ossified. About the situation of the right internal abdominal ring, there was a small diffused swelling, (better perhaps described as a fulness of the part), so ill-defined that it was said, at first, there was no protrusion; however, on comparing it with the opposite side, and pressing in the fingers around it, the tumour was more readily detected. Pressure upon the swelling produced pain, and caused it to recede; but it returned immediately upon the pressure being relinquished. A lump, feeling like a loose sac containing omentum, occupied and extended from the external ring.

"The taxis in the warm bath, a turpentine injection, etc., producing no change, an operation was determined upon. An incision was made opposite the internal ring directly over the swelling, and continued parallel to the inguinal canal. The tendon of the external oblique, the fibres of the internal oblique and transversalis, each, in distinct layers, were divided, and a hernial tumour, the size of a large walnut, was exposed in the upper part of the in-

¹ Previously to this, cases of the accident had been noticed by Sir C. Bell, Messrs. Green and Callaway, and Mr. Bransby Cooper; but Mr. Luke was the first British surgeon who deduced the line of practice to be adopted.

guinal canal. A portion of small intestine, of a dark colour, but reserving its natural lustre, and a small quantity of dirty fluid, were found in the protruded sac. This portion of the sac was but a small part of the whole; the remainder was situated within the abdomen, so that it required the full length of the index finger (a middle sized one), to reach the seat of stricture—the neck of the sac. It was necessary before dividing the stricture, to obtain more freedom by incising the lower edge of the abdominal muscles in a direction across their fibres, and, in order to prevent the neck of the sac receding from the finger, to have it held by the divided edge. The nail of the forefinger was then, with difficulty, insinuated between the intestine and the stricture, and the latter was divided. Although the finger freely entered the abdomen through the neck of the sac, some obstruction opposed the return of the intestine. A resisting band was felt, situated to the inner side of the neck of the sac, between which and the abdominal parietes, the intestine was pressed, and could be felt passing towards the mesial line beyond the reach of a finger; it was dislodged from this situation, and pushed back into the abdomen. The wound was closed, and a bandage applied. The further details of the progress of the case until the patient's death are briefly these:—

“No immediate relief was afforded by the operation; partial quiet and alleviation of symptoms were obtained by an opiate administered directly after; the vomiting continued and constipation remained. No satisfactory action of the bowels was obtained by the free exhibition of enemata, thrown up with the long elastic tube introduced to its full extent. Symptoms of peritonitis were established (in spite of remedies), twenty-four hours after the operation, and in thirty-six hours, evidences of failing vitality appeared; gangrene of the posterior part of the scrotum was discovered, and in the course of twelve hours it spread over the scrotum, penis, lower part of the abdomen, and upper part of the thighs. The patient died in rather more than forty-eight hours after the operation.

“*Post-mortem* examination thirty-six hours after death.—The gangrenous integument was distended with gas. The layer of adipose tissue was thick; the edges of the wound not adhering. There were evidences of general peritonitis, which were most marked in the right inguinal region, where the convolutions were glued together by recently effused lymph. The portion of intestine that had been strangulated, consisting of nearly a foot of the upper part of the ileum, was dark coloured, almost black, covered with patches of recently effused lymph, puckered up in the position it must have assumed in the sac, and deeply marked by the stricture, having an additional depression, partly encircling it below the indentation. The position and relation of the sac will perhaps be better understood by describing it as forming a double pouch, with a common neck and opening; a smaller pouch, about one-fifth of the whole, partly within the abdomen, and partly protruding through the internal ring, and a second and larger pouch, placed nearly at right angles to the former, and extending from the inner side of the internal ring between the peritoneum and abdominal parietes. The cord of the obliterated hypogastric artery had been separated from its natural position on the inner side of the internal ring by the interposition of the larger pouch. It was this which formed the resisting band felt during the operation, and which had caused the second mark upon the portion of intestine that had been strangulated. The sac was readily drawn out from its double position, and then formed a simple bag. The outer side of the neck of the sac was only slightly separated from its connexion with the abdominal parietes. The substance which had been felt at the external ring proved to be a mass of fat, connected by a long pedicle, extending up the inguinal canal to the exterior of the protruded portion of the sac.

“Mr. Luke, in his observations, says, ‘that the firmness of the adhesions of the parts in which a hernia is embedded, bears no proportion to the duration of the hernial protrusion.’ This remark is of great importance in relation to

the efforts that it is safe to make in reducing a hernia by the taxis, both as regards the degree of force to be used, and the period to which it may extend. The evidence furnished by the present case is not very satisfactory on this point, as I could not obtain from the patient a very clear detail of what had previously occurred. As far as I could ascertain, the force used was not sufficient to cause much pain; the reduction of the swelling was perceived by a gradual diminution in its size, not by any sudden decrease. There was no appearance of injury or bruising of the integuments, in the neighbourhood of the swelling, when he was admitted into the hospital; and the intestine also was free from ecchymosis. On the whole, I am inclined to the opinion, that the reduction was effected *more* by the continual employment of a degree of force—not injurious perhaps in itself—than by any one or more undue violent efforts.

“My first conclusion, with regard to the nature of the present case, was, that a scrotal rupture had been partly reduced,—a portion of intestine remaining in the inguinal canal, constricted, in some manner, at the external ring. This opinion was founded on the evidence of the indefinite swelling,—the form a protrusion assumes when small, and confined to the inguinal canal,—and the pressure at the external ring, of what I thought was a hernial sac. The ready yielding of the tumour, and its re-appearance, raised a difficulty to such a diagnosis, and a suspicion of the real nature of the case was then entertained; but the supposed sac at the external ring was an obstacle to such a view of the matter. The clear indication, under existing circumstances, was, to cut down on the swelling in the canal, and explore the mystery. The formation of fat about the sacs of old herniæ is mentioned by some authors on hernia.

“I have, since this case occurred, noticed a similar mass of fat appended to an old scrotal hernia, that became the subject of a post-mortem examination. It was uniformly attached to the sac, though easily separable; and might have been left behind, in the reduction of the sac, in the manner that I conjecture the mass in the present instance to have been. More recently, in operating upon a strangulated inguinal rupture which had existed many years,—and been operated on before,—after I had divided a very thick layer of fascia, a mass was exposed, resembling, at first sight, omentum covered with a thin sac; it proved to be a layer of fat about one-third of an inch thick, connected with the sac which was situated beneath it.

“Mr. Luke, in speaking of the facts connected with reduction in mass, and the conclusions to be drawn from them, remarks, ‘that the presence of a sac, even without hernial contents, causes an abdominal fulness in the part, easily ascertained by examination. The absence of such fulness in a part where hernia is known to have previously descended, necessarily leads to the conclusion, that the sac, upon which it depended, has been displaced, and probably returned together with the hernia. The sac, in inguinal hernia, below the external ring, becomes united with the spermatic cord, whereby the latter is usually rendered indistinct and obscure. The absence of that indistinctness and obscurity implies the removal of the cause which previously produced them; and, therefore, that the sac has been displaced. The *continuance* of the indistinctness, or obscurity, leads to a directly *contrary conclusion*.’

“The present case shows, that the conclusion to be drawn with regard to the presence of the sac, from the existence of a substance feeling like omentum, in the situation recently occupied by a hernial protrusion, suspected to have been reduced in mass, should be received with some reservation.

“Unconfirmed by other evidence, it cannot be viewed as a certain proof. In addition to this, the existence of depositions of fat in the cord, often placed at the external ring, cysts of the cord, and varicocoele, would cause a fulness and obscurity about it, which could not be distinguished from that occasioned by the sac, with or without some portion of its contents. The

only effect, perhaps, of this uncertainty on practice, in such cases, would be, to afford additional reason for an exploratory operation. The direction which the returned bowel, with its investing sac, took (to the inner side of the internal ring), is not that which appears generally to have been observed in inguinal hernia,—viz., below the level of the internal ring, towards the cavity of the pelvis, or else towards the outer side of the ring. The incomplete reduction of the hernia is in accordance with the results of the experiments made by JULES CLOQUET on the dead subject,—that ‘in external inguinal hernia, the reduction is generally incomplete, and the swelling reappears as soon as the efforts at reduction are discontinued.’ I cannot help thinking that, in this instance, the obliterated hypogastric cord had some share in causing the small portion of the rupture to reappear when apparently reduced, and preventing the complete reduction of the whole. By the approximation of the internal ring, from the long continuance of the rupture, towards the obliterated artery, and by the interposition of the sac and intestine between the parietes of the abdomen and the peritoneum, (the neck of the sac retaining its connexions externally), the inner edge of the neck and the obliterated artery would be forced in a direction backwards, and somewhat outward, so as to bring the latter more nearly opposite the internal ring. Its resistance, added to that afforded by the connexion of the peritoneum with the walls of the abdomen, would then form an obstacle to the complete reduction. Be that as it may, the cord of the vessel exercised considerable pressure,—much more than might, *à priori*, have been anticipated. The difficulty in returning the intestine after the neck of the sac had been divided, and the mark discovered about the portion of bowel that must have occupied the large pouch, sufficiently show this. The manner in which the reduced portion of rupture was girt between the hypogastric cord and the abdominal parietes, would have prevented the reprotrusion of that part by the efforts of coughing and straining, as have been recommended,—the effect of such attempts being, to cause the cord to press more tightly upon the part it constricted. The depth from the surface, at which the stricture was placed, and the obstacle the hypogastric cord occasioned to the return of the intestine, furnished the only difficulties in the operation. The return of the intestine might have been facilitated by dividing this cord, if it could have been recognized; but then it should be remembered, that it is sometimes pervious, by a narrow canal conveying blood for the supply of superior vesical arteries; and a troublesome, perhaps serious, hemorrhage might have resulted. The continuance of the symptoms of strangulation, after the operation, was due to the portion of bowel not recovering itself after it was replaced.”

OLD HYDROCELE TREATED BY EXCISION; AND SIMPLE HYDROCELE
BY IODINE INJECTIONS.

At the Hôpital S. Louis, of Paris, on the 20th September, 1848, M. MALGAIGNE operated in the following case; which we quote from the *Journal de Méd. et de Chir. Pratiques*, for January 1849, p. 18-20.

The patient was a locksmith, aged 22 years. When eight years old, he had observed that the right side of the scrotum was larger than the left. The tumour was of an ovoid form, without irregularities, and of the size of a turkey's egg. It was hard, and felt heavy like a sarcocele, for which, from this cause, it had been mistaken by the surgeons of the Hôtel Dieu. The right spermatic chord was harder than the left. There were no lancinating pains; and excepting above, and posteriorly, pressure caused only slight uneasiness. To remove doubts as to the nature of the case, M. Malgaigne made gently an exploratory puncture with a narrow bistoury, (an instrument which can be more easily guided than a trocar). Some drops of fluid exuded. A trocar was then substituted for the bistoury; and after this had been made—with some difficulty

—to penetrate into the tunica vaginalis, about six ounces and a half (*une palette et demie*), of a brownish serosity were drawn off. Immediately after this, fluctuation, which had formerly been masked by the tension of the swelling, became appreciable; and, at the same time, the hard and thickened tunica vaginalis could be distinguished through the skin, feeling like puckered parchment. As the injection of iodine would have been useless in a case of this kind, M. Malgaigne resolved to excise the cyst. An incision was made on the external aspect of the tumour, by which was made evident the hypertrophy of the integuments, their adhesion to the tunica vaginalis, and the cartilaginous transformation of the latter, which was not less than from three to four millimetres (between 1-6 and 1-8 of an inch) in thickness. The question arose,—ought the incision to be prolonged, and a portion of the tunica vaginalis dissected out? This would have been a laborious proceeding, and one involving the risk of hæmorrhage. The operator therefore seized the tunica vaginalis in the forceps, and, with the aid of his finger and a spatula, dis severed it with great facility, in the whole circumference of the tumour. Excision was then accomplished by means of scissors, in such a way as to avoid causing hernia of the testicle, (which organ, though flattened, was healthy). A pledget of lint was placed in the wound, and the scrotum was supported by a sling-bandage. As a precaution, a truss was applied over the inguinal ring and spermatic chord; this being considered the best method of preventing or moderating bleeding consequent upon an operation of this kind. On the 23rd, suppuration was established. On the 2nd of October, dossils of lint (*mèches*) were introduced into the wound, with the view of hastening contraction of a small abscess situated inferiorly. On the 18th, the wound was reduced to the condition of a fistula. On the 24th, pressure was applied to it by means of bandages: and on the 1st of November, the patient left the hospital cured.

Simple Hydroceles are treated by M. Malgaigne by means of iodine injections, composed of two-thirds of tincture of iodine¹ to one-third of distilled water. He conceives that the success attendant on the use of this injection depends upon attention being paid to certain little details. To secure the production of the necessary amount of adhesive inflammation, he advises that the scrotum be left pendulous in the first instance. When this inflammatory action has accomplished the object for which it has been excited, or when it seems to be running too high, the scrotum must be supported, not by a suspensory bandage, but by means of a cravat, arranged in the form of a sling, with its ends attached before and behind, to an abdominal cincture. Support effected in this way, conjoined with the use of emollient cataplasms, suffice to restrain the inflammation within the desired limits. Resolution may be hastened by methodical pressure on the scrotum, effected by means of adhesive bandages.

OBSTETRICS.

SUCTION-TRACTOR PROPOSED BY DR. J. Y. SIMPSON AS A SUBSTITUTE FOR THE OBSTETRIC FORCEPS.

In our last number (p. 205) allusion was made to a new Obstetric Instrument proposed by Dr. J. Y. SIMPSON. We find the following very interesting paper, explanatory of this Suction-tractor, in the proceedings of the Edinburgh Obstetric Society, published in the *Edinburgh Monthly Journal* for February 1849. We much fear that this proposed substitute for the forceps may only lead to disappointment. That a power, more than sufficient, can readily be obtained, we doubt not; but we almost dread the infant's scalp being torn off, or a parietal bone dragged out. However, our fears may be

¹ The Tincture of Iodine referred to is, we presume, that of the Parisian Codex.

visionary; and certainly the communication of Professor Simpson is most deserving of attention. Our objection is, perhaps, answered in the extract which Dr. S. gives from Dr. ARNOTT; but, before approving of the proposal, we must wait to see it fully tested in practice. We quote, with very little abridgment, so as to enable our readers to judge for themselves.

"In such tedious cases as seem to require the use of the short forceps, the idea has perhaps crossed the minds of most accoucheurs, that if they could get hold of the *exposed* portion of the scalp of the child, or of the skin forming the caput succedaneum, and could possibly pull by *this* hold, they might expedite the process of delivery. The spherical form of the infant's head, and the intimate mode in which the scalp is spread over the arch of the cranium, prevent the possibility of taking any such hold by the fingers alone. Dibranchiate cephalopods—as the common cuttle-fish—fix their arms, by suctional discs, so firmly to different surfaces, that their arms themselves will often tear before the suckers. If we could fix upon the *exposed* portion of the foetal scalp the suctional disc of a limpet or cuttle-fish with the usual force with which they adhere to the sea rocks, etc., to which they are attached, we would have, in many cases, a power sufficient to enable us to apply by them the necessary amount of extractive force. Such an arrangement and apparatus may be imitated by art. In one protracted case which Dr. Simpson described, he had lately made use of this power to extract the child. When applied, the head was still high up in the pelvic cavity, and the instrument easily afforded such a hold of the head, as to allow it to be slowly dragged forwards and extracted. During this extraction, the instrument required to be re-applied once or twice. The instrument used in this case was very imperfect. It consisted of a common metallic vaginal speculum, fitted with a piston, and with the edge of the trumpet-shaped concave disc at its outer or broader end covered with leather. This broader or leathered end was coated with lard, and applied to the head of the child, and then an exhausting effect produced by moving the piston forwards. The apparatus would admit of much improvement and simplification, as by the mouth of it being made expandible, and capable of altering in shape, instead of metallic and fixed; by the inner edge of it being coated, as in atmospheric railways, by a thin layer or cushion of air enclosed in caoutchouc; by the exhausting apparatus being valved and more perfect, etc. etc.¹ If the Suction-tractor should answer in some long forceps cases, and enable us to drag with sufficient force upon the exposed portion of the scalp, it would save the danger dreaded by many, of wounding the uterus by introducing and working the blades of so long an instrument as the long forceps, high up in the neck and cavity of the uterus itself. Presentations of the breech sometimes require instrumental assistance. The hook passed over the flexure of the thigh is dangerous, and very apt to injure. The forceps are often inapplicable and inefficient. Perhaps the Suction-tractor may afford us a new and sufficient instrumental force for the management of some of these cases. Its use would be simpler and safer than any of the other methods proposed. Dr. Simpson was not aware that any one had applied practically this obstetric means, before it was employed in the case detailed to the Society. But the idea of using such a power had been long ago proposed by Dr. ARNOTT of London. Dr. Arnett (*Physics*, p. 636) alludes to the subject in the following words: 'The forceps', says he, 'to be well and safely used, requires address, which even the natur-

¹ Since the above was published (as we see by a note appended to a reprint of his paper), Dr. S. has made a great variety of experiments, with a view of ascertaining the best form of disc or mouth piece and exhaustor. He finds that a syringe and piston, valved like the common breast pump, so as to make a pretty perfect vacuum, and having a disc attached to it formed of a double cup, the outer cup of caoutchouc, and overlapping considerably the edges of an inner and smaller cup of metal or gutta percha, makes an Air-Tractor possessed apparently of the necessary applicability, and requisite adhesive and extractive power.

ally dexterous man cannot possess, without a certain degree of continued practical familiarity with it: and, except in large towns, a man must be unfortunate in his practice who often requires it: hence the really small number of persons who use it well. A tractor of three inches in diameter would act upon any body, to lift or draw it, with a force of about a hundred pounds—with more, therefore, than is ever required or allowable in obstetric practice. In lifting a stone, the tractor does not act as if it were glued or nailed to the stone, but merely bears or takes off the atmospheric pressure from one part, and allows the pressure on the opposite side, not then counter-balanced, to push the stone in the direction of the tractor; so when placed upon the child's head, it would not pull by the skin, in the manner of a very strong adhesive plaster applied there, as uninformed persons would be apt to supposed; but by taking off a certain atmospheric pressure from the part of the head on which it rested, it would allow the pressure on the other side or behind to urge the head forward on its way. Of course the pressure in such a case would not operate on the head directly, but through the intervening parietes and contents of the abdomen. It would be preferable to have a gentle and diffused action of the tractor over a large space, rather than an intense action on a small space, and therefore a tractor for the purpose now contemplated should not be very small, and should have a little air underneath it in a slight depression or cavity at its centre. The forceps must be more effective than the tractor for rectifying malposition of the head, and diminishing its transverse diameter; but the tractor will answer both these purposes in a greater degree than might at first be expected.' (p. 636.) Paré, Paaw, Hildanus, Scultetus, etc., have described and figured suckers, or tractors, as applied to the head with the object of removing depression of the cranium in children."

DR. HUGHES BENNETT'S CASE OF SPONTANEOUS CURE OF
OVARIAN DROPSY.

The following is the case alluded to at page 214 of our last number. Upon consideration, we are disposed fully to concur in the correctness of the diagnosis. Perhaps no other case is recorded, in which a fistulous communication has been established between the ovarian sac and the urinary passages.

"Anne Pyper, aged 25, was admitted into the Royal Infirmary, Nov. 8, 1848. She had been delivered fourteen days previously of a male child, in the Maternity Hospital; the labour presented nothing unusual. After the birth, the abdomen continued enlarged, and at first led to the suspicion that another foetus remained in the uterus. After a time, the true nature of the case was rendered manifest, and a large swelling was detected, which was movable to a certain extent, and presented all the characters of an encysted tumour of the left ovary.

"When I first examined her, I found the abdomen swollen to about that of the sixth or seventh month of pregnancy. The tumour extended from the epigastrium to the pubis, but bulged considerably towards the left side. Its surface was irregular; and two large nodules, each the size of a cocoa-nut, existed about its centre. It was tense and firm to the feel, somewhat elastic, and without fluctuation. The tumour was firmly fixed, and the seat of constant pain,—especially in the left lumbar region,—which was increased by pressure, by lying on the right side, or on assuming the erect posture. The urine was of a slight yellow colour, and normal; the digestive, respiratory, circulatory, nervous, and integumentary organs appeared to be healthy. She had observed the tumour seven months before her delivery; and it has gone on gradually increasing, and been somewhat painful, from the first. *Eight leeches were ordered to the most painful part of the abdomen.* The local pain was relieved by the leeches. On Nov. 12, my attention was directed to the urine, which presented a copious white deposit, occupying two-fifths of the

jar, while the supernatant portion was of a light amber colour, and unusually viscid. The deposit was determined, by the microscope, to consist of pus, mingled with a few compound granular corpuscles. The clear portion was strongly coagulable by heat and nitric acid. At first I imagined that the cyst had burst into the vagina; but the patient and nurse assured me that there was no discharge between the intervals of micturition, and that all the fluid came from the bladder. The urine presented the same characters during the next three days,—the amount discharged, during the twenty-four hours, being about three pints. On the 15th, the tumour had somewhat diminished in size, its hardness and tensility had disappeared, and distinct fluctuation was perceptible in it. *A broad flannel roller was ordered to be applied firmly round the abdomen, and compression made by means of paste-board, previously soaked and modelled to the abdominal surface.*

“From this time, the abdomen rapidly diminished in volume, while the amount of purulent viscous fluid discharged from the bladder, varied from three to five pints in the twenty-four hours. The appetite and general health continued good; and she was ordered nutritious diet, with four ounces of wine daily. On the 23rd, the amount of pus contained in the urine was greatly lessened, and the clear portion presented only a slight haziness on the addition of nitric acid. On the 27th, the abdomen had regained its natural size, although a dense mass—evidently the collapsed ovarian sac—could readily be distinguished, occupying the left iliac and hypochondriac regions. The urine now was natural in quantity, and presented only a slight sediment, consisting of oxalate of lime, and a few pus globules.

“From this period, she may be said to have recovered. She suffered occasionally from uneasy feelings on the left side, sometimes amounting to pain, which were relieved by the application of four leeches, followed by a small blister. She was dismissed on the 18th of December, expressing herself as being well in every respect. The indurated mass in the left iliac region was greatly diminished in size, but still very perceptible to the feel, though not to the eye.”—[Abridged from *Edinburgh Monthly Journal*, February 1849, p. 509-10.]

MATERIA MEDICA AND PHARMACY.

THE MECHANICAL LEECH OF MM. ALEXANDRE AND CO. OF PARIS.

This apparatus consists essentially of two parts—an instrument for puncturing the skin, and another for promoting the flow of blood by removing atmospheric pressure from the punctured part. The puncture is effected by a lancet, the blade of which has the form of the cutting apparatus of the leech. This lancet is fixed in the mouth of a tube, and projects about the eighth of an inch beyond the edge of the tube. It may be elevated by a small lever, so that its point shall be within the tube, in which position it is secured by a catch. Attached to the opposite end of the tube, by a piece of vulcanized India-rubber, which acts as a spring, is a piston, which is pressed down by a rod, and, on removing the pressure, is drawn back by the India-rubber spring. The piston being pressed down, the open end of the tube in which the lancet is fixed, is placed over the part to be punctured: the pressure is now removed, when the piston is drawn back by the spring, and exhausting the air within the tube, the skin is forced up into the mouth of the tube. On loosening the lever, by which the lancet has been elevated, the latter is drawn down by a spring, also of vulcanized India-rubber, so as to effect the puncture. The cutting instrument is now removed, and a glass tube with a piston, similar to that already described, is placed over the puncture, the air within being exhausted so that the tube adheres to the part, and the blood flows freely into it. Half-a dozen or a dozen tubes, each of

which would draw as much blood as a large leech, might be thus attached in two or three minutes. The apparatus, consisting of a cutting instrument and six or twelve suction tubes, together with sundry implements for cleaning the lancet and tubes after use, are contained in a small case. It is very neatly got up, and, we understand from those who have used it, is very efficient. The idea, however, is not new: so long ago as the year 1813, the silver medal was awarded at the Society of Arts to Mr. J. WHITFORD, of St. Bartholomew's Hospital, for the invention of a somewhat similar apparatus for the same purpose. In Mr. Whitford's apparatus the exhaustion was effected by a syringe, which was found to be inconvenient. The use of vulcanized India-rubber springs, attached to the pistons, by which efficient suction-tubes are economically formed, is a great improvement in MM. Alexandre's apparatus.—*Pharm. Journal* for Feb. 1849, p. 369.

THE CINCHONA HARVEST.

In his *Travels in Peru*, Dr. VON TSCHUDI says, that the Indians assemble in May for the purpose of gathering Cinchona. The forests in which the tree is found are so dense, that the Indians are obliged to mount one of the highest of them, in order to cast a general *coup-d'œil* over the forest, and to distinguish the *manchas*, or places where the Cinchona trees are grouped together. The men who climb the trees are called *cateadores*, or seekers; and a great deal of experience is necessary, to be able to recognize, at a single glance, in the midst of a very dense foliage, the Cinchona trees, by the peculiar tint of their leaves, which does not differ remarkably from that of the surrounding trees. As soon as the *cateador* has found the object of his search, he descends to rejoin his companions, and conducts them with wonderful precision, and through the midst of a very dense thicket, towards the group of trees which he has discovered. A hut is forthwith constructed, for the purpose of repose at night, and also to dry the bark. The tree is cut down as near the ground as possible, divided into pieces of three or four feet in length, and, by means of a curved instrument, longitudinal incisions are made in the bark. In a few days the bark, if dry, is made up into parcels; but in many districts, it has to be carried while green to the neighbouring villages, and there dried by exposure to the sun.

Towards the end of September, the *cascarilleros* (from *cascarilla*, the name which the Indians give to Cinchona) return home, and in the following spring resume their usual labour. At the time of the first discovery of South America, Cinchona formed one of the chief articles of commerce in Peru; but since the commencement of the present century, the importance of that commerce has greatly decreased, either from the transmission to Europe of an inferior quality of bark, or from the discovery of quinine having diminished the quantity of Cinchona employed since that period. During the war of independence, the Cinchona trade received a fatal blow: and but small quantities of the bark have been exported from Peru for several years.

In the present day the trade is beginning to revive, especially as the trees, which had been cut down, have sent up vigorous shoots, particularly in the Huanaco Mountains. A species of Cinchona is found in the Huamalis Mountains, on the nature of which botanists are not agreed, and in which a peculiar alkaloid, *cusconin* or *aricin*, has been discovered by two French chemists, Corriol and Pelletier. During the stay of Tschudi in Peru, it was in contemplation to establish a manufactory of quinine at Huanaco. There is already one in Bolivia, conducted by a Frenchman; but the quinine which proceeds from it is very impure. The Peruvians employ the green bark of Cinchona in intermittent fevers; and Tschudi has been able to assure us, from personal experience, that it possesses more activity in this form, than in the dry state.—[From *l'Union Médicale*, 16th Nov. 1848.]

CHEMICAL NATURE OF COD-LIVER OIL.

Dr. JONATHAN PEREIRA has communicated to the *Pharmaceutical Journal* for February 1849, pp. 370-78, the important researches of DE JONGH, accompanied by important remarks of his own. The following is an abridgment of the paper, which, our readers will observe (among other interesting facts), points out that sulphuric acid is a test, by which the oil obtained from the livers of fish can be distinguished from the oil got from other parts of the animal.

The oils obtained from the livers of the tribe *Gadidæ* are very similar in their physical, and chemical, and probably also in their medicinal, properties. To all of them, the term *Oleum Jecoris Aselli*, *Oleum Jecoris Gadi*, or *Cod-liver Oil*, is indiscriminately applied; though it is commonly used to indicate the oil of the liver of the common cod (*gadus morrhua*, Cuv.). It would be better, therefore, to employ the term *Oleum Jecoris Morrhua*, when it is intended to designate the latter oil.

De Jongh, in his *Disquisitio Comparativa Chemico-Medica de Tribus Olei Jecoris Aselli Speciebus*, published at Leyden in 1843, states, that the Bergen (Norwegian) oil is principally obtained from three species: viz. the dorse (*gadus callarias*), the coal-fish (*gadus carbonarius*), and the pollack (*gadus pollachius*); but chiefly from the first.

De Jongh made a very elaborate analysis of three kinds of Cod-liver Oil:—

1. *Pale Cod-liver Oil*.—Golden yellow; odour not disagreeable; not bitter, but leaving in the throat a somewhat acrid fishy taste; reacts feebly as an acid; sp. gr. 0.923 at 63°·5 Fahr. Cold alcohol dissolves from 2.5 to 2.7 per cent. of the oil; hot alcohol from 3.5 to 4.5 per cent.; in ether it is soluble in all proportions.

2. *Pale brown Cod-liver Oil*.—Colour, that of Malaga wine; odour not disagreeable; bitterish, leaving a slightly acrid fishy taste in the throat; reacts feebly as an acid; sp. gr. 0.924 at 63°·5 Fahr. Cold alcohol dissolves from 2.8 to 3.2 per cent. of oil; hot alcohol, from 6.5 to 6.8 per cent. Ether dissolves it in all proportions.

3. *Dark brown Cod-liver Oil*.—Dark brown, is transmitted light greenish, in thin layers transparent; odour, disagreeable, empyreumatic; taste, bitter and empyreumatic, leaving behind, in the fauces, an acrid sensation; reacts feebly as an acid; sp. gr. 0.929 at 63°·5 Fahr. Cold alcohol dissolves from 5.9 to 6.9 per cent. of it; hot alcohol, from 6.5 to 6.9 per cent. In ether it is soluble in all proportions.

De Jongh found the constituents of these oils to be *oleate* and *margarate* of *glycerine*, possessing the usual properties. But they also contained *butyric* and *acetic acids*, the principal constituents of the *bile* (bilifellinic acid, bilifulvin, and cholic acid), some *peculiar principles* (among which was the substance called *gaduïn*), and not quite one per cent. of *salts*, containing iodine, chlorine, and traces of bromine. Moreover, he found that the oils contained free *phosphorus*.¹

The *pale* oil is richest in oleic acid and glycerine; the *brown* oil contains the largest amount of margaric, butyric, and acetic acids, and of the substances peculiar to Cod-liver oil; and the *pale brown* oil is richest in iodine and saline matters.

1. *Gaduïn* (discovered by De Jongh) is thus obtained: Saponify Cod-liver Oil by means of caustic soda, and decompose the soap thus obtained by acetate of lead. The resulting lead-soap treat with ether, which takes up oleate of lead and gaduïn, and leaves undissolved the margarate of lead. The ethereal solution is dark brown. If it be decomposed by sulphuric acid, brown

¹ For the precise results of the analyses, we must refer to the *Pharmaceutical Journal*.

oleic acid is set free. The brown colour of this acid is owing to the presence of gaduin. To separate the latter, add excess of caustic soda to the oleic acid, by which oleate of soda is formed. This is insoluble in the excess of caustic soda. It is to be dissolved in alcohol, and the alcoholic solution cooled below 32° Fahr., by which the oleate of soda separates, leaving, for the most part, the gaduin in solution. By sulphuric acid, the gaduin is precipitated from its solution.

Gaduin is first yellow, but on exposure to air, brown; it is odourless, tasteless, soluble in alcohol, but rendered insoluble by evaporating its solution to dryness. The alcoholic solution yields, on the addition of neutral acetate of lead, a copious precipitate, composed of $C_{35}H_{22}O$, PbO . If this lead salt be digested with carbonate of soda, it is decomposed, and a soda salt is obtained in solution, from which sulphuric acid precipitates a brown acid. Gaduin is insoluble in water, in nitric, and in hydrochloric acids. In sulphuric acid it dissolves, and acquires a blood-red colour; but from this solution it is precipitated both by water and alkalies. It is soluble in alkalies. Diffused through water, and treated with chlorine, it becomes decolourized. In burning, it yields an odour first of acetic acid, afterwards of cod-oil, and leaves behind a small quantity of ash. Berzelius thinks that Gaduin is primitive bilifulvic acid; and that the reddish-brown substance, insoluble both in alcohol and water, which he (Berzelius) separated from bilifulvin by long and numerous operations, is only the insoluble modification of Gaduin. Gaduin is contained in the three varieties of oil examined by De Jongh.

2. *Fatty acids*,—*margaric and oleic acids*,—do not appear to differ in their nature and composition from the same acids procured from other sources.

3. *Glycerine*.—This was obtained by saponifying Cod-liver Oil by caustic soda.

4. *Bile Constituents*.—When Cod-liver Oil is shaken with water, an emulsion is obtained, from which the oil slowly separates. The aqueous liquid becomes clear by filtration. That which had been obtained by shaking the brown oil with water, was coloured and empyreumatic; but the other kinds of oil did not colour the water. The liquid invariably had a slightly acid reaction, and the oil which had been shaken with it was clearer, had a feebler odour, and reacted less powerfully as an acid. By boiling the oils with water, the same results were obtained. By evaporation, the aqueous fluids from all the three kinds of oil yielded a reddish-brown extract, which, softened by heat, was slightly soluble in water, more soluble in ether, and completely so in alcohol. Alkaline solutions dissolved it, and acids threw it down again in the form of a reddish-brown flocculent precipitate. The extracts had a peculiar odour, and a bitterish taste. The quantities obtained from the different kinds of oil were as follow:

	With cold water.	With hot water.
Pale oil : ...	0.607 per cent. ...	0.513 per cent.
Clear brown oil	0.890 — ...	0.849 —
Brown oil ...	1.288 — ...	1.256 —

When successively treated with ether, alcohol, and dilute spirit, all these extracts yielded the same results.

By ether, a reddish-brown, transparent, glutinous extract was obtained, which melted by heat, stained paper, and had the odour and taste of bile. After some time, small crystals made their appearance in it. It was slightly soluble in water, but readily so in ether and alcohol. A solution of carbonate of ammonia, added to its ethereal solution, caused separation into two layers. The upper turbid layer, by evaporation, yielded some drops of *olein*, some crystals of *margarin*, and a *brownish mass*, which was identical with that procured by the evaporation of the lower layer. This brown mass had a bitter taste, was separated by water into a soluble and insoluble portion, and consisted of *fellinate* and *cholate of ammonia*.

The extract, which had been exhausted by ether, yielded to alcohol a

blackish-brown, odourless, bitter, shining, hygroscopic mass, which dissolved with difficulty in water, and consisted of *biliverdin*, *bilifulvin*, and *bilifellinic acid*.

Dilute spirit removed from the residual extract a black shining substance, soluble in alkalis, concentrated sulphuric acid, and hot acetic acid, but insoluble in nitric and hydrochloric acids. From its alcoholic solution, baryta-water and acetate of lead precipitated it of a brown colour. It left no residue by burning.

The residue of the aqueous extract, left after the action of the three above-mentioned solvents, contained an *organic substance* (whose nature has not been determined) and *inorganic salts*, in which chlorine, phosphoric and sulphuric acids, lime, magnesia, and soda were found, but no potash or iodine.

5. *Iodine, bromine, and chlorine*.—Their therapeutical agency in the oil must, if any, be exceedingly small. The proportions in which they exist are inconstant, though very trifling. Beneficial effects have been produced by the use of the oil, which neither iodine nor bromine are capable of producing. De Jongh says, that iodine is present in genuine Cod-liver Oil, but that the only certain mode of detecting it is to saponify the oil, and carbonize the resulting soap. He confirms STEIN's remark, that neither by immediately carbonizing the oil, nor by saponifying it, and then decomposing the soap by acids, can the iodine be detected. It follows, therefore, that iodine exists in the oil neither in the free state nor in that of metallic iodide, but probably in organic combination—perhaps, as an iodic fatty acid. De Jongh determined the proportion of iodine by forming iodide of palladium; every 100 parts of anhydrous iodide of palladium was considered equivalent to 70.34 parts of free iodine.

The largest amount of iodine found in genuine oil is less than 0.05 per cent. If the amount obtained be larger than this, fraud may be suspected. Dr. MARTINI¹ says, that dishonest druggists have introduced iodine into the oil, to augment its commercial value; and it is stated that artificial Cod-liver Oil has been made by combining iodine with common train oils.

De Jongh detected *bromine* and *chlorine*, in minute quantities, in the oil.

6. *Phosphoric and Sulphuric acids, and Phosphorus*, were found by De Jongh.

7. *Acetic and Butyric acids*.—De Jongh separated these volatile acids from Cod-liver Oil by adding sulphuric acid to the soda-soap, and distilling the liquor thus obtained.

The GENUINENESS and PURITY are known partly by physical, and partly by chemical tests.

The PHYSICAL CHARACTERS are colour, odour, and flavour. The finest oil is most devoid of colour, odour, and flavour. The oil in the cells of the fresh liver is nearly colourless, and the brownish colour possessed by the ordinary Cod-oil used by carriers is due to colouring matters derived from the decomposing hepatic tissues and fluids, or from the action of air on the oil. Chemical analysis lends no support to the opinion, at one time entertained, that the brown oil was superior, as a therapeutical agent, to the pale oil. If patients could conquer their aversion to the brown oil, its free use, like that of other rancid and empyreumatic fats, would often disturb the digestive functions, and be attended with injurious effects.

Of the CHEMICAL CHARACTERS which have been used to determine the genuineness of Cod-liver Oil, some have reference to the iodine, others to the gaduin, or to the bile constituents. Iodine, or iodide of potassium, added to train oil, to imitate Cod-liver Oil, may be readily detected by adding a solution of starch and a few drops of sulphuric acid, by which the blue iodide of starch is produced; or the suspected oil may be shaken with alcohol, which abstracts the iodine. But though we may thus readily prove that the sus-

¹ Naturgeschichte der für die Heilkunde wichtigen Thiere. Darmstadt: 1847.

pected oil contains no artificially added iodine, the iodine which is naturally contained in, and more intimately combined with the oil, may be frequently recognized by another process. MARCHAND¹ gives the following directions for detecting it: Saponify the oil with soda, carbonize the soap thus obtained, digest the coal in distilled water, add a drop of starch paste, and subject the mixture to the action of a voltaic battery, the positive pole being placed in contact with the starch paste, the negative pole with the solution. If iodine be present, the starch becomes blue. Marchand states that by this test, the iodine can be detected in the urine of a patient soon after he has taken the oil. This, however, is certainly not always correct; for I submitted the urine of a young gentleman, who, for several weeks, had taken with great benefit a table-spoonful of Cod-liver Oil thrice daily, to the action of a galvanic battery of fifty pairs of plates for several hours, without obtaining the slightest evidence of the presence of iodine.

Sulphuric acid has been employed as a test for Cod-liver Oil. If a drop of concentrated sulphuric acid be added to fresh Cod-liver Oil, the latter assumes a fine violet colour, which soon passes into yellowish or brownish-red. Some samples produce at once the red colour, without the preliminary violet tint. It has been erroneously supposed by some persons, that this violet colour was due to the evolution of iodine, by the action of the acid on an alkaline iodide contained in the oil. If that were the case, the presence of a little starch-paste would be sufficient to convert the violet into an intense blue colour; which is not the case. The colouration in fact depends on the action of the sulphuric acid on some one or more organic constituents of the oil, and the following facts lead me to infer that it is in part due to the presence in the oil of one of the constituents of the bile. In 1844, PETTENKOFER² pointed out a new test for bile. If to a liquid supposed to contain bile, about two-thirds of its volume of oil of vitriol be added, the liquid kept cool, a few drops of a solution of cane-sugar (four or five parts of water to one of sugar) be added, and the mixture shaken up, a violet red colour is produced, provided bile be present. This test succeeds very well, if we dissolve a little extract of ox-bile in water, and test the solution with sugar and oil of vitriol. The colour developed agrees with that produced by the addition of oil of vitriol to Cod-liver Oil, which De Jongh has shown, contains the essential constituents of the bile. Pettenkofer remarks, that the presence of a very great excess of chlorides will change the violet-red colour into a brownish-red. This fact is deserving of notice, because it may aid in accounting for the fact that some specimens of Cod-liver Oil strike a brownish-red, not a violet-red colour, with oil of vitriol.

STRECKER³ confirms PLATNER's observation that both cholic and paracholic acids produce the same colour with sugar and oil of vitriol, as bile does; so that Pettenkofer's test doubtless acts on one or both of these acids. Now De Jongh has shown that cholic acid is contained in Cod-liver Oil, and we have, therefore, good reason for believing that it is in part by the action of oil of vitriol on this acid, that the violet-red colour is produced. For the development of this colour in bile it is necessary to use, besides oil of vitriol, a third agent (sugar). For cane-sugar we may substitute grape-sugar, starch, or any substance which can by the action of oil of vitriol be converted into grape-sugar. No such substance has hitherto been detected in Cod-liver Oil, and, therefore, it may be said the necessary ingredient to produce this characteristic re-action of oil of vitriol on cholic acid is wanting. Strecker has recently supplied the wanting link. In his valuable paper on ox-bile, he observes that acetic acid may be substituted for sugar. To the liquid supposed to

¹ Lehrbuch der Physiolog. Chemie.

² Ann. der Chemie und Pharmacie, Bd. lii, s. 90, 1844; also Simon's Chemistry, translated by Dr. Day, vol. ii, p. 193.

³ Ann. der Chemie und Pharmacie, Bd. lxx, s. 15, 1848.

contain bile, add a few drops of acetic acid, and then concentrated sulphuric acid, when a magnificent purple-red colour is developed. If the quantity of bile be small, it may be necessary to use heat. Now, as Cod-liver Oil contains acetic acid, we have the requisite agent to enable the oil of vitriol to act on the cholic acid, and the development of the purple or violet-red colour is then readily accounted for. I have already noticed the red colour produced by the action of oil of vitriol on gaduin (supposed by BERZELIUS to be derived from the bile). Here, then, is another source for the red colour caused by the action of sulphuric acid on Cod-liver Oil.

Sulphuric acid, then, is a test for liver oils. It does not distinguish one liver oil from another: neither does it distinguish good Cod-liver Oil from bad, for it produces its characteristic re-action both with common brown Cod-oil, and with the finest and palest qualities. But it serves to distinguish oil procured from the liver, from oil obtained from other parts of the animal.

TOXICOLOGY.

ONE PROCESS FOR DETECTING ALL METALS IN ORGANIC MATTERS.

In the *Annales d'Hygiène Publique*, for January 1849, we find a paper, by M. H. GAULTIER DE CLABRY, on a "Process by which all Metals can be obtained by a single operation, in chemo-legal researches." His objects are,—1, to obtain in all cases a solution of the metal; 2, to collect the metal from the solution; and 3, to present it in solution, in as concentrated a form as possible, to the action of chemical reagents. He says:—

With this intention (that of obtaining a perfect solution of the metallic substances), hydrochloric acid or chlorine have been employed, with more or less advantage. Without stopping to discuss the advantages or inconveniences arising from their employment, we may say, that the alteration desired to be effected by them is always more or less difficult, and that a great proportion of the organic matter resists their action. We know, from numerous facts, how much more readily a body enters into a new combination when in a nascent state, than when in the form under which we see it; and it is precisely in this state that chlorine may be made available for the object which occupies our attention. . . . If we introduce any organic matter into fuming hydrochloric acid, and, after having removed the fatty matters, which are altered with difficulty, gradually add concentrated nitric acid to the fluid, either cold or slightly warmed, a complete solution is obtained of every thing, with the exception of fatty matters. The solution is almost colourless, transparent, and can be afterwards tested with the greatest facility.

The stomach, intestines, liver, products of vomiting, excrements, blood, urine, wine, milk, earth from burying-grounds, etc., etc., can all be treated after this method, which requires no particular care, so that the operation is performed as easily as the solution of a metal in an acid. Where the poisonous agent is arsenic, if the operation be conducted slowly, the metal does not pass off by evaporation; however, as a portion of chloride of arsenic may be volatilized, and as the chlorine and acid require some means to prevent them from passing off, and incommoding the operator by filling the laboratory with their vapours, it is always best to use a retort furnished with a tubular receiver. When the operation is finished, the condensed liquor is to be treated in the manner to be presently described. A tubular retort, into which are introduced in succession, first the hydrochloric acid, then the suspected materials, and finally the nitric acid, is thus sufficient for the operation. If it be known that arsenic do not exist, and there be no necessity for guarding against the escape of acid vapours and of chlorine, the operation may be performed in a matrass. By this process, the difficulties are prevented, which arise from the employment of sulphuric acid for the destruction of the organic materials, and a perfectly liquid product is obtained.

When the materials are much disorganized, the nitric acid is to be introduced gradually, and gentle heat is to be applied. When, after successive additions of the acid, the organic matters have disappeared, leaving only fatty matters, the liquor is to be decanted, and washed several times in distilled water. This is to be poured off, and mixed with the acid solution. After this, the detection of the metals becomes extremely easy, and may be effected in various ways.

If it be desired to use hydro-sulphuric acid, the nitric acid must be driven off, by boiling the liquor with an excess of hydro-chloric acid, until chlorine ceases to escape: after this, the liquor will only have to be tested for zinc, which may be present accidentally, or for those metals which are not precipitable by hydro-sulphuric acid. If Marsh's test is to be employed, the liquor must be saturated with pure potash; and, after decomposition has taken place, sulphuric acid must be added, till the last traces of nitric acid are removed. The operation may then proceed in the ordinary manner.

I have employed another process, which seems to offer important advantages, and is easy to be performed; it depends on the precipitation, by a galvanic current, of the metals in solution. After having concentrated the liquors, as far as experience may determine to be necessary for driving off an excess of acid, there are to be placed in the solution two plates of platinum, or a single plate of that metal, forming the catilode of a permanent battery; and another of zinc (if that metal be not sought for), of tin, or platinum, forming the anode. After an interval of greater or less duration, according to circumstances, but never exceeding, in the most unfavourable conditions, eight or ten hours, the platinum is covered by a deposit of the metal, or metals, which were in solution. This deposit is to be washed, and treated with hot or cold nitric acid; a solution of the metal or metals is thus obtained, which, from the small quantity of liquid, can be operated on with the greatest facility. In this way, almost infinitesimal quantities of the various metals may be detected; and it is obvious that the same proceeding is applicable to all, with the exception of silver, which is rarely to be tested for in cases of poisoning, and zinc, which necessitates the employment of tin or platinum, as the anode of the pile.

Although sparingly soluble, chloride of lead dissolves in an excess of hydro-chloric acid easily enough for all the lead to be detected in the liquor.

If the presence of arsenic be suspected in the matters to be examined, the liquids procured by the treatment with nitric acid, must be saturated with potash; and, after the solution has been conveniently concentrated, must be remixed with the solution of the organic products. In no other case have volatile products to be dealt with.

It is not worth while to describe the numerous experiments which I have made on this process, as, in the hands of chemists, it will present no difficulty in its application.

The legal chemist is not only called on to afford light to the investigations of justice, in cases of poisoning, but frequently also to perform experiments, with the view of detecting the presence of substances which are not in sufficient quantity to act at once as poisons, but whose use is to be prevented on account of the accidents to which they may give rise: *e.g.* the presence of copper in bread. It is well known, that bakers have sometimes fraudulently introduced extremely small proportions of sulphate of copper into paste. The combustion of the charcoal from bread is very tedious; but an examination is performed with ease and rapidity by the process which I have described. It permits a large quantity of bread to be operated on, and a repetition of the experiments, with a degree of exactitude, which leaves nothing to be desired.

When, in testing for zinc in bread, or in other organic matters, recourse is had to carbonization, there is always danger of a portion of the metal being volatilized; by treating it with aqua regia, the operation is rendered easy,

and no part of the metal is lost. It is not necessary to mention all the other circumstances to which this new method may be applied. I have met with no case in which I have not been able to employ it ; and hence I may consider that its adoption will render great services to chemists, when called on to make researches of the kind under consideration.

It may be objected to this method, as to many others in which hydrochloric acid has been used, that this acid may contain arsenic. There is but one answer to this objection, viz.—that as hydro-chloric acid can be obtained free from arsenic, such must be procured, and alone employed. Sulphuric acid, also, often contains a greater or less quantity of this metal ; that only which is free from it, is to be used.

POISONING WITH CHLORIDE OF ZINC : SUGGESTION OF AN ANTIDOTE.

Dr. THOMAS STRATTON, R.N., relates in the *Edinburgh Medical and Surgical Journal*, for October 1848, two cases of poisoning with Chloride of Zinc. In both cases, a wine-glassful of a solution was swallowed, containing in one case, about twelve grains of the salt, and in the other, about two hundred grains. In the latter case, burning pain in the gullet, burning and griping pain in the stomach, great nausea, and sense of coldness, were instantly felt. Vomiting followed in a few minutes. Dr. Stratton saw this patient twenty minutes after the accident, and instantly made a strong solution of home-made brownish soap, of which he made the patient swallow, at intervals, three or four pints. Afterwards, olive oil was given, and the patient recovered. The other case was not seen by any medical man ; but it also terminated favourably. Dr. Stratton suggests either soap, or carbonate of soda or of potash, as antidotes to Chloride of Zinc, and supports his suggestion by the recital of experiments which he has performed.

PSYCHOLOGY.

THE POLITICAL CLUBS OF PARIS, AND THEIR INFLUENCE ON THE CEREBRAL FUNCTIONS.

Under the above title, an editorial article appears in *l'Union Médicale* for 3rd February, 1849, of which the following is the substance.

A Club is not an institution, where an orator collects around him a calm and benevolent audience ; nor is it an assemblage of pupils listening attentively to the words of their master, and fearing to allow their passions to be excited, lest they should be prevented from receiving instruction. Any one who has, even for an instant, entered one of these tumultuous assemblies of Paris, called "CLUBS," must be convinced of the contrary. In them, applause is only awarded to him who arrives at the highest pitch of warmth, of passion, and of anger. No heed is paid to the calm and simple language of reason : attention and sympathy are granted only to him who can most powerfully excite. Perhaps serious consequences would not arise, if the excessive excitement did not proceed beyond this point ; but it is greatly increased by the nature of the matters which are discussed, and by the right, possessed by every one, of speaking in his turn. The subjects of discussion are not the *duties*, but the "*rights*," of the audience. The orator takes care not to mention the duties which his auditor owes to the state ; but, on the contrary, he tells him, that the state owes him every thing. Such ideas, carried out to their fullest extent by principles of Socialism, raise a man's pride to its extreme elevation ; and lead him, from having a modest sense of his own worth, to exaggerate it far beyond its real bounds. The dullest and meanest intellects are influenced by the universal right of speaking. He who has hitherto been silent on important questions, thinks that his future career is that of a public orator, destined to solve the deep problems of political science ; he

has been often told from the tribune, that he can speak as well, and think even better, than statesmen of the highest reputation. While in a state of excitement and passion he hears himself applauded. Henceforth he becomes the orator !

The Clubs thus tend to provoke pride and its consequences ; and, if we reflect that the exalted consciousness of *ego*, that an over-powerful self-love, is one of the most active causes of insanity, we shall not be surprised that these schools of agitation are prolific of insanity. Habitual excitement alone will produce insanity ; and the more easily when self-esteem is provoked, and pride is brought into a state of activity. Many instances have occurred, where the mere excitement of a theory has caused insanity. This was witnessed, for example, in the flourishing days of Saint-Simonism.

The Clubs, however, have furnished a larger tribute to the lunatic asylums than Saint-Simonism. Many patients, whose insanity is of recent date, have been admitted into these establishments. Some of these persons have become deranged through the troubles of the civil war, by the loss of their position, or the ruin of their fortune. But most owe their insanity to the Clubs. Their weak or infirm intellects have there been excited. This pride-madness is the madness of *personality*,—the worship of *ego* in its extreme form. The frequenter of the Clubs foolishly thinks himself destined to achieve something wonderful. He knows the secret of the imposition of taxes, of the payment of the debt, of the government of the state, of the enrichment of the poor, and degradation of the rich. There is no rank which he cannot debase, no degree of infirmity or want which he cannot relieve. Such men must understand these subjects, for they have become geniuses, under the influence of mental alienation ; they are no longer poor mortals,—they are deities !

It is true, that many of these patients are sent to the asylums on the first appearance of the malady ; but in these times, where exaggeration is the order of the day, many remain associated among the sane, partaking of all the excitements of the moment, and feeding their insanity. Great is the number of those who arrive at a high state of excitement, without actually becoming insane. Such persons form the ordinary effective force of the clubs, and are the instruments of disorder, under the direction of the evil-disposed. There is a resemblance, in the processes of reasoning carried on by these politicians, to those which are heard in asylums, among the undoubted victims of mental disorder. These institutions of pretended instruction, or foci of liberty and discussion, now open in Paris and throughout France, are places where human pride is developed into aberration of mind, and ultimately into perfect insanity. To tolerate such institutions, is to permit a few isolated affections to take the terrible proportions of an epidemic. The malady would be formidable enough if it only affected human life ; but it also strikes at the root of the social system. A prompt remedy must be applied. It has been proposed to close the Clubs ; and this is the only practicable method of arresting the mischief. If the National Assembly considered the subject as they ought, in a psychological point of view, they would, without hesitation, adopt this proceeding.

REPORTS OF SOCIETIES AND ACADEMIES.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

FIFTH MEETING OF SESSION, 1848-49.—JANUARY 23.

J. M. ARNOTT, ESQ., F.R.S., PRESIDENT.

CASE OF ANEURISM OF THE AXILLARY ARTERY. BY HENRY HANCOCK, ESQ.—A bargeman, aged thirty-four, who was admitted into the Charing-cross Hospital in August last. The tumour presented all the ordinary characteristics of aneurism, and occupied the entire axilla, raising the pectoral muscles and clavicle. He was bled on admission, and a week afterwards Mr. HANCOCK placed a ligature on the subclavian, external to the scalenus. The case went on favourably for a fortnight, when the tumour showed signs of inflammation. At the end of three weeks the ligature came away; six days after which, the sac, which had suppurated, burst. Another opening was made lower down, which allowed the escape of a large quantity of offensive blood and matter. The wound made at the operation was then nearly healed. From this time he appeared to be going on well for ten days, when suddenly a gush of blood took place from the sac, and he expired in about three-quarters of an hour afterwards. A careful dissection was made of the parts, and the axillary artery was found healthy, except where it communicated with the sac. The divided ends of the artery were each closed by adhesive inflammation, and a plug of coagulum of about half an inch in length. Six branches were found proceeding from the artery between the part on which the ligature was applied and the opening in the side of the artery into the sac. From one or more of the largest of these the fatal hæmorrhage probably took place, the blood being thus brought backwards into the artery above the opening into the sac, and its impulse forcing out the coagulum which was interposed. Mr. H. gave a statistical account of operations for the cure of traumatic and idiopathic axillary aneurism, in confirmation of his impression that the ligature should be placed on the axillary artery itself "in all cases where the mischief can be traced to a direct injury, and where the size of the tumour admits of our reaching this vessel." The risk of hæmorrhage would, he considers, be thus materially diminished, if not altogether obviated, in case of the sac suppurating, as in the present instance.

Mr. B. PHILLIPS said, it must be recollected, that in cases requiring ligature in this neighbourhood, the axilla frequently presented such appearances, that the surgeon would scarcely feel justified in performing any operation below the clavicle; and this would explain, perhaps, the reason why this operation was so little resorted to. It was one, however, that surgeons usually recommended, when practicable; and Mr. Hodgson, if he had not said so much in words, had, by implication, given it his sanction. Desault and Pelletan had also adopted the practice; therefore Mr. Hancock was in error in supposing he was recommending any novel mode of proceeding. The operation on the axilla was the rule, and not the exception, as Mr. Hancock had stated.

Mr. HANCOCK was surprised at the remark of Mr. Phillips respecting the opinions of Mr. Hodgson and other surgeons. He had no recollection of any such statement in the works referred to. The cases enumerated in the paper were:—*First*, Those in which the subclavian was tied for idiopathic axillary aneurism; *Second*, Those in which the subclavian was tied for traumatic axillary aneurism; and *Third*, Those in which the axillary itself was tied for traumatic aneurism of that vessel. Of the first, there were twenty cases—ten recovered, ten died; of the second, eighteen cases—eight recovered, and ten died. Of the last, there were four cases, all of which recovered.

Mr. ERICHSEN had paid some attention to the subject under discussion, and had formed the opposite opinion to that promulgated by Mr. Hancock. He agreed with him in his definition of aneurism; and excluded all cases which did not come under that category. Now in eight cases in which the subclavian had been tied *above* the clavicle, for traumatic axillary aneurism, seven had recovered; and four or five cases, tied *below* the clavicle, had all recovered. It was necessary to distinguish between spontaneous, and circumscribed false aneurism; as in the first, the mortality was greater in an equal number of cases, when the subclavian was tied. In the operation recommended by Mr. H., you run the risk of cutting off the collateral circulation of the arm, the probable consequence of which would be gangrene of the extremity.

Mr. HANCOCK contested the validity of Mr. Erichsen's statistics; and remarked, he (Mr. H.) had drawn his conclusions from a much larger number of cases. With regard to gangrene, Mr. Erichsen had proved how futile was the objection, for his own four cases had all recovered.

ON SCARLATINAL ALBUMINURIA, AND THE SEQUELÆ PROPER TO THAT AFFECTION. WITH ILLUSTRATIVE CASES.—BY JAMES MILLER, M.D.—Dr MILLER gave a table, comprising 219 cases of scarlatina observed during the summer of 1848. In fifty-nine cases, the scarlatina was followed by renal anasarca, while in ten cases, the latter affection occurred, unpreceded by any of the ordinary outward signs of scarlatina, the cases of renal anasarca making altogether somewhat more than one-third of the whole. After a brief sketch of the prominent features of the renal anasarca following scarlatina, as it ordinarily occurs, he noticed the importance of œdema of the face as a characteristic symptom. He divided the disease into four species, according to the intensity of the general symptoms, the absence or presence of dropsy, etc., and pointed to the relation observed to subsist between albuminuria and anasarca—namely that the degree or intensity of the one is, as a general rule, in an inverse proportion to that of the other. The question whether renal dropsy succeeding scarlatina should be considered a sequela or not, was then taken up. In accordance with the laws of the operation of the scarlatinal poison in the human economy, the notion of the kidney being involved among its primary actions, although usually second or third in the order of structures affected, was considered, and an attempt made to strengthen the supposition, by a detail of eight cases in which there was direct exposure to the scarlatinal miasm, but which were wholly unpreceded by eruption, throat affection, etc., a rigor alone ushering it in, with slight and short preliminary fever. Such cases the author distinguishes by the name of scarlatina renum; and he includes also under that appellation, the cases in which the kidney exhibits an equally intense morbid action, but in which the skin has previously been affected in a minor degree. He further supported his position by the known epidemic character of the complication, and its occurring in families and groups of children, in accordance with the unknown law which stamps each epidemic with its special character from the commencement. The present epidemic was noticed as one essentially of a renal character; and the fact was remarked on, that some former epidemics have been distinguished by the same feature, while others have been characterized by absence of renal symptoms. He gave a few cases of inflammation of serous membranes subsequent to, if not consequent upon, the renal disorder of scarlatina. Such inflammations, described as among the secondary and tertiary direct effects of the morbid poison by most writers, were viewed as more properly falling under the head of sequelæ.

Dr. WEBSTER said, that as upwards of 3,550 persons had died of scarlatina in London alone, since the 1st of July last, consequently, according to the ratio of deaths reported by the author, of one in seven, about 25,000 cases of this disease must have occurred in the metropolis, being the greatest epidemic of the kind which had been known for many years.

Dr. SNOW said, he was of opinion that the kidneys were liable to be affected as well as the skin, tonsils, or mucous membrane, in the first days of an attack of scarlet fever. In two or three cases where children died during the eruption, he had found the lining membrane of the pelvis of the kidney red and injected, and believed that the inflammation extended to the lining of the tubuli uriniferi. He considered that this first affection of the kidney, either by causing a desquamation of the epithelial scales, analogous to the shedding of the cuticle, or in some other way, led to secondary congestive disease of the kidney, which was the immediate cause of the anasarca, and inflammation of the serous membranes. In those cases related in the paper, in which the albuminuria and anasarca were supposed to be the first and only effects of the scarlatinal poison, he (Dr. SNOW) considered that there must have been a mild attack of the fever some three weeks previously, which had been overlooked by the parents.

Dr. MILLER replied, that he had had no opportunity of examining the kidneys during the eruptive stage of the fever. When death took place at a later period, after dropsy had existed, there was no redness of the pelvis of the kidney, but great congestion of the cortical substance, as shown by the mottled condition of the exterior of the organ.

Dr. BASHAM.—Every one must have been struck with the peculiar tendency of the late epidemic to be attended with dropsy. This sequence was so common, that he had thought it had occurred even more frequently than the author had stated. The dropsy depended on the effect of the poison itself on the kidneys.

Dr. STEWART thought that the dropsy must depend on some cause independent of the poison of the disease, or we should not have it more frequently in one epidemic, than in another.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

FOURTH MEETING OF THE SESSION. WEDNESDAY, JANUARY 17, 1849.

Dr. BEGBIE, V.P., in the Chair.

CASE OF VARIOLA, IN WHICH THE ERUPTION WAS FOUND ON THE MUCOUS MEMBRANE OF THE COLON.—Dr. GEORGE PATERSON, one of the Physicians of the Infirmary, read a case of Small-pox, occurring in an unvaccinated boy, five years of age, which proved fatal on the fourth day of the eruption,—death having been preceded, for about twenty hours, by discharges of blood from the bowels, nose, and mouth, and the appearance of masses of ecchymosis beneath the integuments of the lower limbs. He exhibited a drawing of the appearances found in the colon after death. There had been pustules, greatly resembling those met with on the skin; and superficial incrustations most abundant, and running together in the lower part of the intestine. Although most medical authorities were opposed to the opinion that Small-pox could exist upon the mucous membrane of the intestines, it was maintained, and cases in support of it recorded by BLANE, ROSTAN, FRORIER, and others. When we consider the analogies between mucous membranes and the skin; the fact pretty generally admitted, that Small-pox pustules can occur on certain of the mucous membranes; the additional fact, that they have been met with on membranes entirely different in their nature, as the serous coverings of the liver and spleen,—there seems no good reason to doubt the possibility of their occasional occurrence in the intestinal canal. The appearance is extremely rare; but this may depend on the isolation of the mucous membrane of the bowels from the external air, and on the secretions and other matters which are more or less constantly in contact with its surface, modifying the appearance, and preventing the maturation of the pustule. In the present case, death occurred so unusually early, that there had probably not been time for these causes to produce their usual results; either by obliter-

ating the pustule altogether, or by converting it into an ulceration, which, when met with, many will not allow to be other than the mucous follicles themselves inflamed and ulcerated.

DR. W. T. GAIRDNER, Pathologist to the Infirmary, (who had made the post-mortem examination along with Dr. Paterson), said, there could be no doubt that the pustules in the colon were variolous. The variolous matter was always deposited, when in the skin, in the lower layers of the epidermis, and between it and the corion, which was only superficially ulcerated. In mucous membranes, the matter was thrown out between the epithelium and the sub-mucous layer, and such was the case in the present instance; for, on removing the crust, the injected sub-mucous layer was seen flat and unbroken, excepting by a few minute points of superficial ulceration. This superficial form of disease could never be mistaken, as had been alleged, for the affection of the solitary glands, which invariably extended through the whole depth of the sub-mucous layer.

ANEURISMS OF THE LEFT VENTRICLE OF THE HEART.—DR. HALLIDAY DOUGLAS presented a specimen of Aneurisms of this description. There were two aneurismal sacs,—both near the apex of the heart, and communicating freely with the cavity of the ventricle. Each sac was about the size of a chesnut: one was empty, and communicated with the ventricle by an orifice having a diameter of three-quarters of an inch; the other sac contained a decolorized fibrinous clot, with a small cavity in its interior, and communicating with the ventricle by an orifice less than a quarter of an inch in diameter. The margin of the orifice of this sac was *firm*, almost cartilaginous, and perfectly *smooth*. In several other points of the ventricular surface there was the appearance of the commencing formation of a similar sac. The heart was increased in bulk; its weight not stated. The ventricles, especially the left, were dilated. The endocardial surface was opaque and indurated; the valves were competent. Chronic adhesion of the pericardial surfaces existed in different situations, more extensively on the surface of the left ventricle, and on the surface of both aneurismal sacs. The state of the other organs was not described, except the kidneys, which were granular, and the liver, which was healthy. The patient was a female, aged 30, admitted into the hospital under charge of Dr. Douglas, November 1847. The symptoms of cardiac disease had not been distinctly developed till within a year of her death. Previous to this, she had suffered from chest symptoms, arising from chronic bronchitis, which latterly became intense; and she had worn a tracheotomy-tube for twelve years. She was under the care of Dr. Douglas for ten days only previous to death. At this time there was general dropsy; there were the signs of intense general bronchitis, and a much enfeebled circulation; the cardiac signs were chiefly referable to the dilatation; but a murmur accompanied the first sound. The urine had long been exceedingly scanty; it was free from albumen till shortly before death.

DR. SPITTAL remarked that the case was rare. He asked Dr. Douglas his opinion as to the mechanism by which such sacs were produced? Was there ulceration of the membrane lining the ventricle, and a consequent yielding of its parietes during the contraction of the heart?

DR. H. DOUGLAS did not think that there was any ulceration—certainly there was no appearance of loss of substance where the sacs were formed. It was quite possible that chronic inflammation of the endocardium had been the primary lesion, and that that had been followed by loss of tonicity, and mechanical expansion of a portion of the heart.

ANEURISM OF THE VESSELS AT THE BASE OF THE BRAIN.—DR. H. DOUGLAS also presented a specimen of Aneurism of the circle of Willis. The sac involved the internal carotid artery, where it divided into its terminal branches,

and it was about the size of a field bean. It was removed from the body of a woman, aged thirty-nine (not seen by Dr. Douglas during life), who was suddenly attacked, eight days before death, by headache and vertigo. She afterwards became insensible, and died in the course of two hours. She was stated to have suffered from headache fourteen years previously, when a seton was introduced, and other treatment employed. There was a layer of blood effused on the surface of the arachnoid generally, but to a greater extent at the base of the brain. No calcareous deposit existed in the cerebral or other vessels.

ECCHYMOSIS IN THE COLON IN CHOLERA.—DR. W. ROBERTSON, Physician to the Infirmary and Cholera Hospital, showed a specimen of extensive extravasation of blood beneath the mucous membrane of the colon. The patient had died in the stage of collapse; there had been no unusual symptom, except the discharge of reddish-brown fluid from the bowels. Stools of the same appearance had been observed in other cases during the present epidemic, but were not always associated with the ecchymosed condition of the mucous membrane.

DR. SPITTAL adverted to the frequency of ecchymoses in the course of the nerves, particularly the pneumogastric nerve in the neck, during the last epidemic of cholera.

DR. W. T. GAIRDNER had examined the pneumogastric nerves in a number of cases, but had only once seen any considerable ecchymosis, and this was in a case in which extravasation had occurred in several places. Ecchymoses were very common in cholera in the intestines, and also on the pericardium, the conjunctiva, and the pleura. The blood coagulated very firmly in the heart and great vessels, and was in general very dense and viscid. The microscopic elements of the blood did not appear to be altered.¹

FIFTH MEETING OF THE SESSION.—WEDNESDAY, FEBRUARY 7, 1849.

JAMES SYME, ESQ., PRESIDENT, IN THE CHAIR.

SAFETY AND SUITABLENESS OF CHLOROFORM AS AN ANÆSTHETIC AGENT IN SOME OF THE MORE COMPLEX AND SERIOUS OPERATIONS IN SURGERY. By Dr. WILLIAM KEITH, Surgeon to the Aberdeen Infirmary.—In two cases of lithotomy, violent convulsive struggling came on after the patients were secured for operation and chloroform administered. These cases induced Dr. K. to call in question the propriety of using chloroform in like cases; but, during a recent visit to Edinburgh, having witnessed operations performed on patients in a state of anæsthesia, by Professors Simpson, Syme, and Miller, he concluded, "that the mode of administration, and not the chloroform itself, had been in fault in two cases referred to. Four cases of stone having offered immediately on the author's return to Aberdeen, each was subjected to the operation best suited to the case, and all to the anæsthetic influence of chloroform. The *first* patient was a man aged 56, who had a calculus crushed by the lithotrite. The chloroform agreed well in this case, and facilitated the operation by rendering the sphincter of the bladder quite passive. This man made a good recovery. The *second* patient, a child aged three, was sounded, and had a small calculus extracted by the lateral operation of lithotomy, without struggle or suffering. Recovery soon followed. The *third* patient, a man aged 46, had a stone weighing seven drachms extracted by the lateral operation; suffered nothing, and recovered. During the operation, the stomach and bowels discharged their contents with force, and the bladder at the same time contracted spasmodically. The *fourth* patient, a man aged 67, was

¹ Ecchymoses are common in all diseases in which the blood is fluid, and especially in such affections as cholera, in which the serum easily separates from the solid constituents of the blood. It is, from chemical and microscopic researches chiefly, that we may expect to learn the true pathology of cholera.—*Ed. Lond. Journ. of Med.*

subjected to the high operation, and had two calculi, each two ounces in weight, extracted. He suffered nothing during the operation, but died five days after, from the effects of infiltration of urine about the neck of the bladder.

The high operation was resorted to in the last case, because the calculi were known to be large, and because, when the stone exceeds two ounces, this operation ought to be preferred to the lateral operation. The size of the stone influences very materially the success of the operation by the lateral method; and in an experience extending over eighty-three cases of lithotomy, including both hospital and private practice, Dr. Keith has arrived at results very similar to those published in the tabular form by Dr. SIMPSON, in the *Monthly Journal of Medical Science*, for November 1847. In fourteen cases, the stone ranged from *two to four ounces*; of these, seven recovered, and seven died. Therefore, Dr. K. recommends the lithotrity for all stones weighing less than *half an ounce*, and of lateral lithotomy for all stones weighing less than *two ounces*. He desires the revival of the high operation for such as are larger, as the soft parts escape bruising; and bulk in the stone ceases to be the source of danger, the outlet not being confined by a solid arch of bone. The statistics of the author's experience in cases of stone are as follows:—

68 stones,	under $\frac{1}{2}$ oz.,	removed by lithotrity.
69 do. do.	2 oz.,	do. lithotomy.
14 do. from 2 to 4 oz.,	do.	do.
14 do. do.	do.	unfit for any operation.

Total . 165.

“Giving, of cases that offer, with stones weighing above 2 ounces, 1 in $5\frac{25}{28}$; and of such, in which operative-interference may be thought of, 1 in $11\frac{10}{14}$. So that in every 12 cases of stone that may occur, 5 may be cured by lithotrity, 5 by lateral lithotomy, 1 by the high operation, and 1 rejected as *unfit*.” Dr. K. concluded with an expression of opinion, based upon patient and dispassionate trial, “that chloroform, as an anæsthetic agent, is *suitable, safe, and effectual* in the severest operations in surgery.”

MR. SYME did not agree with the author in recommending the high operation even for the removal of large calculi. He feared, also, the consequences likely to result from the performance of lithotrity upon *insensible* patients, by operators less expert than Dr. Keith. If pain was given by the operation of cutting the stone, he believed some mischief was being done; and the mere abolition on the part of the patient, of the power of expressing suffering, could not be held as evidence that the operation was well conducted. He agreed with the author in all that regarded the use of chloroform in lithotomy. He had himself used chloroform in every operation in which it could conveniently be given, and without any bad consequence, fairly attributable to its use. By the use of chloroform the shock of very severe operations is lessened. In a case of amputation at the hip-joint, recently performed by him at the Infirmary, upon an exhausted subject, recovery was owing, he believed, to the employment of chloroform during the operation.

DR. SIMPSON considered the observations made by the chairman the highest possible evidence in favour of the use of chloroform in surgery.

PROFESSORS MILLER, SIMPSON, AND SYME, MR. ROBERTS, and DR. J. A. ROBERTSON, made some remarks on sexual manifestations, cursing, obscene language,—as alleged effects of chloroform. None of the speakers had observed cases of sexual excitement; but the use of improper language had been frequently noticed, during operations in the Infirmary and elsewhere. Mr. Miller thought that these unpleasant manifestations were most frequent among patients from the lower class, addicted to the abuse of ardent spirits. They might often be prevented by inducing sleep rapidly, by avoiding noise, motion, or surgical examination, while administering the chloroform.

SUCTION-TRACTOR AS A SUBSTITUTE FOR THE MIDWIFERY FORCEPS.—Dr. SIMPSON exhibited to the Society an instrument termed the air tractor, a substitute for the midwifery forceps. He illustrated the suction principle, on which he had constructed it, by drawings and by specimens of the *remora*, the *limpet* (*patella*), etc., and showed, by experiment, with a loaded Salter's balance, that the instrument enabled the operator to exert a force quite sufficient for all the exigencies of midwifery. (vide p. 283.)¹

Mr. SYME had seen, in cases of lacerated perineum, deplorable evidence of the mischief inflicted by rash hands, working in the dark, with the obstetric forceps. He sincerely hoped, that Dr. Simpson's invention would supersede more dangerous means of delivery.

Dr. MARGULIES and Mr. HARVEY had witnessed Dr. Simpson's experiments in the Maternity Hospital, and considered the instrument safe and efficient.

ACADEMY OF MEDICINE, PARIS.

JANUARY 2, 1849.—M. VELPEAU, PRESIDENT.

RIGHT OF M. BÉRARD TO SIT IN THE ACADEMY.—The PRESIDENT stated, that by the constitution of the Academy, as settled 20th December, 1820, the Dean of the Faculty of Medicine had a right, *ex officio*, to a seat in the Academy. M. Bérard then, though not before his appointment, was now, in virtue of it, a member.

M. BÉRARD.—Gentlemen, this is the first time that a physician has been called upon to sit among you, who has not been chosen by your suffrages. My predecessors in the Deanship had long been members of this Academy, before their appointment to that office. I feel that my position here is exceptional, and perhaps unfavourable. (*Cries of No ! no !*) I must, at least, explain how it is that I have always abstained from becoming a candidate. This arose from no under-estimate on my part of the labours of the Academy; from no want of appreciation of the honour of having my name enrolled among so many that are illustrious: but I fancied that my pursuits were of too general a character, to entitle me to ask your suffrages. Another cause also may have influenced me: I allude to the admirable reports of your discussions, which the zeal of the medical journalists enabled me to read at my country house. The medical press is an accomplice with me in my neglect. For the present, the duties of my office must fix me in Paris. I will receive at its source that instruction, which I have hitherto taken second-hand. If, by-and-bye, I lose my office of Dean, and with it my right of sitting in this Academy, my privation of the latter will leave me not easily consolable.

CHOLERA.—M. BALLY read a note upon the Cholera at Lille (Pas-de-Calais). He stated that the disease had radiated from a vessel arrived from Dunkirk, manifesting itself in the houses on the banks of the canal. Most of the individuals seized were the inhabitants of nasty lanes, close side-streets, or of crowded courts, where the inhabitants are crammed together in small apartments, without sufficient air or light.

M. Bally stated, that the cases of cholérine were numerous, and could be prevented from proceeding into cholera, by inducing sweating, administering repeated doses of ipecacuan, and adopting other necessary measures. During the nights of 19th and 20th December, the wind having changed from west to north, and frost having set in, no new cases occurred. But, upon a west wind again prevailing, fresh cases occurred. In this epidemic, as in most others, it was rare for a circumscribed locality, and inhabited by several families, to furnish only a single patient. One court, for example, furnished numerous cases of *cholérine*, some of cholera, and four deaths.

M. Bally stated that M. KUHLMAN had made an analysis of the intestinal discharges of the cholera patients; and that, as a general result of his researches, it might be stated, that a notable quantity of albumen was found to exist in them.

CHLOROFORM.—M. BAILLARGER spoke in continuation of an adjourned discussion upon this subject. He stated, that he believed that the young girl, at Boulogne, was a victim to chloroform. He thought that the Academy was bound to make known to the medical world, that chloroform possesses dangers, which its advantages ought not to make us forget.

JANUARY 9, 1849.—M. VELPEAU, PRESIDENT.

CHLOROFORM.—M. JULES GUÉRIN spoke at great length, and with much warmth, against the report which had been made to the Academy.

M. BÉRARD substantially agreed with M. Guérin.

M. PARCHAPPE made a lengthened criticism upon the address of M. Jules Guérin. The topic to which he, as well as the previous speakers, chiefly directed attention, was, whether or not the young woman, the patient of M. GORRÉ, at Boulogne, died from the effects of chloroform.

JANUARY 16, 1849.—M. VELPEAU, PRESIDENT.

CHOLERA.—M. LEVIEZ (of Arras) announced to the Academy, that the cholera was making progress in the department of the Pas-de-Calais. In one house in the commune of Feuchy, seven persons had been attacked in succession, of whom four had died in fifteen, twenty, and thirty-six hours. When M. Leviez visited this house, he found three patients, who had been confined to bed for twenty hours, and who presented all the unequivocal symptoms of Asiatic cholera. It appears, from official statements, that in the department of the North, between the 15th November and 29th December, 246 decided cases of cholera had occurred, of which number 142 had died, and 57 recovered. In Lille, the number of deaths was 44, up to that date.

ETHER AND CHLOROFORM.—M. GIRARDIN (of Rouen), transmitted, in the name of the Academy of Sciences of that town, the copy of a report on the use of ether and chloroform. It contained the following conclusions.

The Academy of Sciences of Rouen believes that it will be of advantage to suggest to the authorities:—1, To exercise *surveillance* over the sale of ether and chloroform, and to place them under the same restrictions as poisonous substances; 2, To render it necessary for these substances to be employed only under the superintendence of a medical man; 3, To exercise supervision over the sale of the apparatus used.

VACANT PLACE IN THE ACADEMY.—The PRESIDENT announced, that in consequence of the decease of Messrs. Poirson, Deneux, and Lisfranc, there was a vacant seat in the Academy. MM. Deneux and Lisfranc having belonged to the section of operative medicine, the vacancy was, according to rule, declared to have occurred in that section. An early day was fixed for proceeding with the election.

CHLOROFORM.—M. ROUX stated that, when recently at Algiers, he had learnt with surprise, that the use of chloroform had been interdicted in the military hospitals.

M. BÉGIN requested permission to interrupt M. Roux for one moment, to state, that the fact mentioned by M. Roux, was perfectly correctly given. When chloroform was announced, it seemed prudent for the military Board of Health to interdict military surgeons from using it. It was then untried, and experience had not, as yet, given any verdict regarding it; and "we were not willing to make experiments upon our soldiers." Military surgery rejoices in, and accepts every improvement; and now, when experience and observation have spoken favourably of chloroform, its use is no longer interdicted. (*Applause.*)

M. ROUX then resumed his address, which was devoted to the consideration of the four following questions:—1. What are the physiological effects of

chloroform? 2. Can anæsthesia of itself prove fatal? 3. What is the cause of death in those unfortunate persons who have perished immediately after the employment of chloroform? 4. What precautions ought to be taken, and what rules followed, to prevent the occurrence of such accidents? In the course of his speech, M. Roux, after remarking that it was not necessary for M. Jules Guérin to have provoked him to speak on his own unfortunate case, made the following statement to the Academy:—"Some months ago, I had occasion to operate on a woman, fifty years of age, with a cancerous tumour of the mamma. She was very much enfeebled. Besides the tumour in the breast, the glands in the axilla were very much diseased, and required removal. Without hesitation, I subjected the woman to the influence of chloroform. Whilst I removed the tumours, she slept soundly. I had hardly finished the first operation, when she awoke. It was still necessary to extirpate the glands from the axilla; and I begged the patient to allow me to do this, without again having recourse to chloroform; to which she consented. The operation was long and laborious. That a bandage might be rolled round her body, she was seated in a chair; and, when in this position, she fainted, and every effort to re-animate her proved unavailing; the syncope was mortal. The question arises, did this patient die from chloroform inhalation? I think not; the case seems to me to have been one of fatal syncope, such as occasionally follows severe operations, and of which I have seen several examples before anæsthetic agents came into vogue, and of which there is hardly a surgeon who cannot cite an example." With reference to the fatal cases mentioned in the report, M. Roux thought that the issue must be imputed to the chloroform. M. Jules Guérin had said, that in all the fatal cases, a sponge or handkerchief had been used, which is quite true. It may thence be argued, that the death of the unfortunate patients must be imputed to this method of administering the anæsthetic agent. Nevertheless, our President uses no other means, and, as yet, no accident has occurred in his practice. Almost all the subjects of the fatal cases have been women. Women are, in fact, most susceptible to anæsthetic agents. M. Roux expressed his belief, that asphyxia, properly so called, pulmonary apoplexy, or extreme intoxication, might take place. He had no doubt, that in all the cases alluded to, chloroform was the cause of death; but this was to be imputed, not to the chloroform itself, but to accidental circumstances, and to the use of defective apparatus. The total number of accidents is small, and does not justify the exaggerated apprehensions of some severe critics. M. Roux proceeded to examine the different ways in which sudden death might take place; viz., death by the lungs, death by the heart, and death by the brain. With reference to the Boulogne case of M. Gorré, he (M. Roux) attributed death to the entrance of air into the circulatory system. In reply to a question suggested by M. Jules Guérin, with reference to the remote influence of chloroform upon operation cases, M. Roux stated, that during the year 1847—the reign of ether—he performed 105 capital operations, and lost 27 of the patients. In 1848—the reign of chloroform—out of 101 capital operations, he had 28 deaths. M. Roux insisted upon a suitable apparatus being used, in preference to a towel, a handkerchief, or a sponge; to respect the susceptibility of the pulmonary tissue, and to cause to enter, along with the chloroform, as much as possible of the atmospheric air; not to induce anæsthesia by chloroform in cases of operation on the rectum; to discontinue the inhalation whenever insensibility is complete. In conclusion, he said, that if he supposed it necessary to be so full of fears, and to take all the precautions recommended by some surgeons, he would for ever renounce the use of chloroform.

M. Rochoux had no doubt, that the Boulogne patient was killed by the chloroform; and he thought that this opinion was strengthened by the fact of air having been found in the organs of circulation.

JANUARY 23, 1849.—M. VELPEAU, PRESIDENT.

CHOLERA.—M. RAVIN (of St. Valéry) wrote to state that Cholera had not yet shown itself at St. Valéry, or the adjoining villages ; but that, in June and August last, he had had two patients suddenly seized with Cholera in a very violent form ; and that since that time, up to the end of the year, cholérine had been very prevalent.

TREATMENT OF ASIATIC CHOLERA BY INTERNAL AND EXTERNAL MEANS.—M. BLATIN stated, at great length, the principal treatment which he was in the habit of adopting in the district where he practised. He said, that out of 225 severe cases of Cholera, he had only had 44 deaths, although out of 461 patients, equally affected with the disease, the mortality rose to 196. The internal treatment which he recommends, in the majority of cases, consists, almost exclusively, of the administration of cold water in large doses. We know the extreme thirst which torments Cholera patients ; and we know the ardour with which they beg for cooling drinks. The observation of this fact induced M. Blatin, after some trials, not only to satisfy the desire of the patients, but to induce them to take quantities of liquid, which would appear enormous, were we to lose sight of the vomiting and purging. Some of his patients drank between five and six pailfuls of cold water in the day. This remedy favoured the return of heat in a very manifest manner, and assisted in modifying the secretions, with regard to their sero-albuminous character, to such an extent, that, at the commencement of the treatment, the patients drank with extreme avidity. With reference to bleeding, M. Blatin thus expressed himself :—"At the commencement of the disease, moderate bleeding does not appear to me to be injurious ; it has appeared to me to promote an improved state of the blood. During reaction, I have rarely ever found it necessary ; this is probably due to my having watched carefully the approach and progress of that state, and not having hastened it by a stimulating plan of treatment. Leeches, which I have frequently applied to the epigastrium, have sucked but little, and have sometimes died on the place ; and there has been no hæmorrhage after their removal. During the algide period, I have found it useless to attempt bleeding from the arm, or by cupping-glasses. I have opened the temporal artery at least ten times, and usually, after from 100 to 150 grammes (from $3\frac{1}{2}$ to 5 oz. of English avoirdupois weight) of slightly red blood, the bleeding has ceased spontaneously. In three cases I observed some bubbles of gas escape with the first drops of liquid, from the opening which I had made in the arm. The result in each of these cases was fatal. Is there a decomposition of fluid in Cholera patients ? I am inclined to think that there is."

CHLOROFORM.—M. GIBERT read, for M. CASTEL, a paper on the Chloroform discussion, in which the author expressed his opinion, that Chloroform acts upon the nervous system and upon the blood, and upon the latter more violently when it is diseased or altered in its composition ; as was the case in the chlorotic patient of M. GORRÉ, at Boulogne. He urged the abandonment of Chloroform for Ether, which he regarded as a much less hazardous substance for inhalation.

M. AMUSSAT spoke at great length, entering minutely into the controversy, both personal and scientific, which has arisen on this subject between M. MALGAIGNE and M. JULES GUÉRIN, each of whom have their supporters among the medical papers of Paris. M. Amussat is decidedly in favour of the use of Chloroform in surgical operations ; and considers it of great value as an auxiliary means in diagnosis, especially when one has to do with timid people, or when tedious and painful explorations are required.

M. ROUX, in reply to a question of M. Jules Guérin, proposed at the preceding meeting of the Academy, brought forward a statement with reference

to the mortality after capital operations. He said, that in 1846 the mortality was a third; and that in 1847 and 1848, that is, since the employment of Ether and Chloroform, it had not exceeded a fourth.

M. JULES GUÉRIN: M. Roux has not understood my question. I asked: What were the results, and what were the consequences, of operations performed under the influence of Chloroform? But M. Roux has only stated the results. Now it has often happened, that untoward occurrences—and, in particular, gangrene of the lungs—have occurred in those cases in which Chloroform has been used.

TREATMENT OF STRICTURES OF THE URETHRA.—M. HONORÉ read, for M. RIGAUD of Strasburgh, a notice of a new instrument, invented by the latter, for the treatment of Strictures. The author believes that, by the assistance of this instrument, dilatation can be satisfactorily accomplished. He employs a catheter of very small diameter, which can, when once introduced into the bladder, equally, gradually, regularly, and in parallel manner, dilate the urethra in its whole length. The memoir, along with the instrument of M. Rigaud, were referred to MM. SÉGALAS and HUGUIER to report.

JANUARY 30, 1849.—M. VELPEAU, PRESIDENT.

ABSENCE OF CANCER IN EGYPT.—M. PRUS stated that Cancer was almost unknown in Egypt; and recommended a residence in that country, as a preventive of that affection in persons apparently predisposed to it.

CHLOROFORM IN HYDROPHOBIA.—M. PRUS had administered Chloroform to a child labouring under hydrophobia, with the effect of producing a tranquil sleep for five minutes; after which the symptoms returned, and death followed.

CHLOROFORM.—M. JULES GUÉRIN commented, with much warmth, upon a remark made by the reporter on Chloroform,—that “an offence is committed against observation and science, when cures are related which have never occurred.” He considered this as a personal insult.

M. MALGAIGNE alluded to the different explanations which had been given of the cause of death in the Boulogne case. His conclusion was, that the death was not due to chloroform, this being a substance which is found always to produce intoxication and insensibility before death, which did not occur in M. Gorré's case. M. Malgaigne then replied to the objections of MM. Blandin and Jules Guérin, each of whom attributed the death to chloroform, and considered the presence of air in the vessels to have been produced by that substance. He objected to the experiments made by M. Jules Guérin, that the doses given by him were excessive, and, consequently, likely to produce death; while, in the Boulogne case, the quantity employed had been small. M. Malgaigne agreed with M. Velpeau, that chloroform sometimes produces death, but considered it not to be by direct action, and especially, not by poisoning. M. Baillarger had thought death might have been due to syncope, in the Boulogne case: this might possibly be so, if the existence of air in the veins were not a sufficient cause.

FEBRUARY 6, 1849.—M. VELPEAU, PRESIDENT.

STRICTURES OF THE URETHRA.—M. GUYON, physician at Clermont-Ferrand, presented a model of an instrument for dilating the urethra, which was referred to the committee appointed to examine the instrument of M. Rigaud.

CHLOROFORM.—M. ROCHOUX called the attention of the Academy to some calculations which he had made, showing that the introduction of air into the veins, required nearly the same time as chloroform to produce death. In the case of M. Gorré, the presence of gas in the veins might be supposed to be due to the chloroform. This was by no means unfrequent, having occurred

in hundreds of other experiments and cases. His conclusion was, that whether, besides the deleterious action on the nervous system, chloroform chemically promoted a disengagement of gas in the blood, or whether, after having become liquid by mixture with the blood, it suddenly assumed the gaseous state, it was not less the only cause of death, directly or indirectly, in the case under consideration.

M. BLANDIN considered that chloroform was the cause of death, and proposed the following as an amendment to the first conclusion of the Commission : " Although the data furnished by examination into the Boulogne case have not been so explicit as might be desired, yet, on considering all the circumstances of the case, the Academy is led to believe, that death resulted from chloroform ; but it does not consider M. Gorré to be responsible for its occurrence."

M. JULES GUÉRIN wished it to be understood, that the attacks he had made on the report, were not directed against the members of the Commission, but against the report, so far as it was the work of M. Malgaigne.

M. MALGAIGNE would not have replied to the attacks of M. Jules Guérin, had he known they were personally directed against him.

M. JULES GUÉRIN had attacked the report of M. Malgaigne, and not his person.

M. GIBERT considered it absurd to cite the exceptional cases, in which death had followed the administration of chloroform, as an argument against its use. Many cases of sudden death occurred during operations, which could not be accounted for. As to the dose, that could not be fixed, from its varying in different persons ; and he agreed in the opinion of M. Roux, that if excessive precaution were indispensable, it would be better to renounce the use of chloroform. He preferred a handkerchief or sponge as the best means of administering it : and thought there could be no doubt that chloroform was preferable to ether, from the irritation which the latter produced.

M. BAILLARGER said that no agent had had such a number of experiments performed on it as chloroform. There were two questions to be considered : 1. Has chloroform been employed without danger in a large number of cases ? 2. Has this agent, on the other hand, tended to produce death in some exceptional cases ? The first question could be answered without hesitation ; but it was no less certain, that fatal cases, though fortunately rare, sometimes occurred. The effects of chloroform vary according to the susceptibility of the individual, or to the quantity of food in the stomach, which was found filled in one of the fatal cases in England : syncope may also occur at the same time, but independently of the administration of the chloroform, and prove fatal by being prolonged by the chloroform. However this might be, the consequences of the union of syncope with the effects of chloroform ought to be specially noticed in the report.

THE REPORTER read the conclusions at which the Commission had arrived, concerning the Boulogne case :

1. In the medico-legal fact submitted to our notice, we have found no indications of the poisonous action of chloroform ; and consequently, we reply to the minister, that the patient of M. Gorré did not die from the effect of inhalation of that agent.

2. There have occurred a great number of analogous cases of sudden and unforeseen death, during operations, without any administration of chloroform, in which the most minute examinations have failed in detecting any assignable cause of death.

3. In the case in question, the most probable cause, under all circumstances, seems to have been the mixture of a considerable quantity of gas with the blood.

These Conclusions were adopted ; as were also the following, contained in the second part of the report :—

1. Chloroform is one of the most powerful agents which can be referred

to the class of poisons, and should only be employed in the hands of experienced persons.

2. Chloroform is liable to irritate, by its odour and contact, the air passages; hence great caution is necessary, when there is an affection of the heart or lungs.

3. Chloroform possesses a peculiar toxic action, which medicine has turned to profit by arresting its progress, as soon as insensibility is produced; but when administered too long, or in too large doses, it may produce immediate death.

4. Certain modes of administration increase the danger; thus there is risk of asphyxia, when the anæsthetic vapour is not sufficiently mixed with air, or when respiration is not free.

5. All these dangers may be escaped by observing the following precautions:—1. To abstain from or stop its administration, in all cases proved to be contra-indicated, and to examine carefully into the state of the organs of circulation and respiration. 2. To take care, during inhalation, that a sufficient quantity of air be mixed with the chloroform, and that respiration be entirely free. 3. To suspend the inhalation as soon as insensibility is procured, and only to repeat it if sensibility return before the end of the operation.

6. It is not proper to administer chloroform after a meal.

FEBRUARY, 15, 1849.—M. VELPEAU, PRESIDENT.

CONTAGION OF TYPHUS FEVER.—M. BRICHETEAU, for himself and MM. Louis and Martin-Solon, presented a report on some facts communicated by M. MONTROL, physician to the hospital at Langres, on the contagion of a typhoid fever which had prevailed at Chaudenay (*arrondissement* of Langres, Haute-Marne). The author adduced facts in support of the opinion that typhoid fever is contagious: but his facts do not appear so conclusive as those of some other observers.

AMPUTATION AT THE TIBIO-TARSAL JOINT.—M. ROBERT, surgeon to the hospital Beaujon, presented a patient on whom he had performed amputation at the tibio-tarsal articulation. He said that surgeons were not agreed on the question, as to how patients, on whom this operation had been performed, could stand upright or walk. Could they rest upon the stump without feeling pain, and without incurring the danger of its becoming irritated or ulcerated? Or must the support be used, which is employed after amputation of the leg above the ankle? The present case is in favour of the possibility of direct support being employed. The patient was a girl, thirteen years old, of scrofulous constitution, who had the left foot amputated for necrosis of some of its bones. The malleoli were excised. The healing proceeded rather slowly, being retarded by the stagnation of some pus; but in about six weeks, she was able to walk without pain or lameness, the stump being enclosed in a boot. The cicatrix is at the anterior part of the stump, and is subjected to no pressure nor friction in walking.

FEBRUARY 20.—M. BRICHETEAU, V.P., in the Chair.

HOMŒOPATHY.—M. GUÉNEAU DE MUSSY, for himself and MM. Andral and Chomel, read a report on the conduct of M. Léon Marchant, one of the physicians of the hôpital St. André, at Bordeaux. The report stated that he treated his patients on homœopathic principles, and had thereby not fulfilled his engagements, made to the administrative commission of the hospitals at Bordeaux.

ACADEMY OF SCIENCES OF PARIS.

January 2, 1849.—M. BOUSSINGAULT, Vice-President of the Academy in 1848, became President for 1849, in rotation.

M. DUPERRY was elected Vice-President for the year 1849.

SIR D. BREWSTER was elected a Foreign Associate, in the room of Baron Berzelius. (See p. 214 of last number.)

January 8, 1849.—EFFECTS OF CAUTERIZATION IN INOCULATION WITH VIRULENT POISONOUS AGENTS.—M. PARCHAPPE regretted that the confidence of medical men in this remedy had been shaken, especially in cases of the bite of a mad dog. He related the following experiments:—1. A quantity of extract of nux vomica, of the size of a pea, was introduced into a wound on the back of a young dog, and produced death in two hours. 2. A similar quantity was introduced into a wound in the foot. The limb was amputated. After twelve minutes, tetanus was complete, but was followed by recovery. 3. A wound in the foot, inoculated as above, was cauterized with a red hot iron. The result was recovery.

From these experiments it appears that the effect of nux vomica can be arrested by amputation, or destruction of the poisoned part. Now, as it appears that the virus of rabies requires a longer time to produce its effects than strychnia, the success of cauterisation in strychnia cases should encourage us to practise it, to prevent absorption of the virus, from the bite of a mad dog.

JANUARY 15, 1849.—PHENOMENA OF BINOCULAR VISION.—MM. FOUCAULT and REGNAULD communicated the results of some experiments which they had made on this subject.

January 15, 1849.—STARCH FROM HORSE-CHESNUTS.—M. BELLOC had prepared Starch from horse-chesnuts, in the same way as it is procured from potatoes, and found them to contain from 19 to 21 per cent. of this substance.

TYPHOID CHOLERA.—Dr. JULES PERIER, chief Physician of the Military Hospital at Calais, addressed a communication to the Academy, stating that the Cholera epidemic in the Pas de Calais in 1848-49, is not of the same nature, nor so fatal, as the Cholera of 1831. The present epidemic has presented some typhoid symptoms.

DIABETES FROM A LARGE DOSE OF NITRATE OF POTASH.—This was a case, communicated by M. CARDAN to M. RAYER, in which three ounces of nitrate of potash had been taken, by mistake, for two ounces of epsom salts. After the symptoms of irritant poisoning had abated, the patient passed upwards of a gallon of urine every night, which was found to contain sugar.

January 29, 1849.—LOCAL ANÆSTHESIA.—M. JULES ROUX (of Cherbourg) communicated the account of a case of deep-seated angeioleucitis, for which he had amputated the thigh at the hip joint, and applied chloroform to the surface of the wound. The patient ultimately died from the absorption of purulent matter. He arrived at the following conclusions: 1, that amputation is sometimes proper in cases of deep-seated angeioleucitis; 2, that anæsthesia is capable of being produced, with safety, in a constitution weakened by suppuration; 3, that the production of local anæsthesia, by the application of ether or chloroform, for about five minutes, has no deleterious effect on the wound, nor on the system.

February 5, 1849.—IODIDE OF POTASSIUM IN DISEASES PRODUCED BY MERCURY OR LEAD.—M. MELSENS communicated, through M. DUMAS, the results of his observations on the employment of Iodide of Potassium in cases of mercurial paralysis, and in chronic poisoning by lead. His object is to procure a soluble and easily eliminated compound of the metals retained in the body.

February 12, 1849.—ANALYSIS OF CHOLERA FLUID.—M. CORENWINDER has made some analyses of cholera fluid, from which it appeared, that a notable quantity of albumen was found in the fluids taken from the intestines; little

or no albumen, some dry matter, and a large proportion of salts, in the stools; and, in the blood, the quantity of dry matter (*matière sèche*) was much greater, while the chloride of sodium was very greatly diminished.

ANÆSTHETICS AMONG THE CHINESE.—M. STANISLAS JULIEN had found allusions to anæsthesia in surgical operations, in an old Chinese work, published at the commencement of the seventeenth century.

February 19, 1849.—M. BERNARD read some RESEARCHES ON THE USE OF THE PANCREATIC JUICE IN DIGESTION, an abstract of which we may afterwards publish.

CHLOROFORM.—M. COZE, Dean of the Faculty of Medicine, at Strasburgh, communicated the results of some experiments he had made, by separately producing anæsthesia of the muscular organs of the brain, or of the spinal marrow. Anæsthesia is always produced, but the effects vary according to the structure and function of the organ placed under its influence. He considers that the chloroform is absorbed in the lungs, and that the blood hereby becomes impregnated. The cause of death, when chloroform has been administered, is probably the introduction of some liquid chloroform into the lungs.

SOUNDS OF THE HEART.—M. WANNER communicated his opinion that the Sounds of the Heart were due to the vibrations of an apparatus situated at a particular point of that organ. He considered the first sound as produced by the striking of the heart against the walls of the chest; the second, by the sudden relaxation of the muscular fibres.

MISCELLANEOUS INTELLIGENCE.

POOR LAW MEDICAL OFFICERS.—A general meeting of Poor Law Medical Officers took place on Monday, February 19th, at the Hanover-square Rooms. LORD ASHLEY presided, and spoke at some length in support of the claims of the medical men, who were entrusted with the charge of the poor. He considered that they should have a suitable income, should be independent of the boards of guardians, and that their situations should be permanent. The secretary then read the report of the association. That document detailed the steps which had been taken to procure a redress of the grievances complained of, and of the interviews which had been held with the late president of the Poor Law Commission, with the Board of Health, and with other departments of the government. The late Mr. Charles Buller had expressed his opinion, that medical relief ought to be separated from the ordinary poor law administration. The medical officers of unions in England and Wales amounted to 3000, out of the 15,000 members of the medical profession; and the whole body was unanimous in condemning the present system of poor law medical relief. Out of the sum of £8,000,000, nominally applied to the relief of the pauper population, only £170,000, at most, was paid to the medical officers, to whom nearly 3,000,000 of the poor were entrusted for relief. The average allowance for drugs in each case was from 1s. 4d. to 1s. 6d., while that of hospitals was 4s. 2d., in dispensaries, 2s. 2d. The report concluded by quoting the opinion of Sir George Grey,—that the question of expense was subordinate to what was necessary in order to ensure efficient medical relief. The meeting was addressed by Mr. Lobb, Mr. Little, Dr. Sibson, Mr. Daniel, Mr. Wells, and other gentlemen, in support of resolutions having for their objects,—to secure increased salaries, by legislative enactments, independence of the boards of guardians, and permanent appointments, the offices being held under the supervision of medical inspectors, according to the suggestion of Dr. Southwood Smith. Mr. Wylde, M.P., proposed a total reform in the constitution of the medical profession, attributing the grievances complained of, to imperfections existing in that constitution. This resolution was with-

drawn, and, the others having been unanimously adopted, the meeting separated.

EDINBURGH CITY PAROCHIAL BOARD AND ROYAL INFIRMARY.—At a recent meeting of the Parochial Board, the subject of the arrangements with the Royal Infirmary, as to the future payment for patients was taken up. In 1846, the Board entered into an arrangement with the Infirmary, agreeing to give a sum on condition that they would take charge of all the pauper patients sent by the Board. £100 had been paid for the year ending March, 1847. In October, 1847, the Managers of the Infirmary resolved to charge either ninepence for each patient per day, or a guinea a-year. An Account had been rendered to the Board by the Managers of the Infirmary, for the year ending September, 1848, leaving a period of six months unaccounted for, charging the Board £982 for the patients which they had sent to the Infirmary. The Board offered £500; but the deputation whom the Managers of the Infirmary appointed to confer with them would not take less than £700; and it was understood that the Managers thought that the deputation did wrong in agreeing to come so low. Mr. LAW urged the Board to pay the £700; and he also stated, that as the Managers of the Infirmary had intimated to the Board that in future they would charge 9d. a day for each patient, the Board would have to consider whether they could keep their patients at a cheaper rate. Mr. MORTIMER said, that of this sum of £982 for the treatment of 1108 pauper patients for a twelvemonth, two-thirds of it was incurred by Irish paupers; there were only 370 Scotch patients, and 738 Irish. The Infirmary is an old building, and (as Sir George Ballingall has shown) quite unsuited to the wants of modern Edinburgh. During epidemics it is always dangerously overcrowded. A new Hospital is therefore urgently required; and one popularly constituted would command support.

NEW ANÆSTHETICS.—Mr. NUNNELLY, of Leeds, announces in the weekly Journals, that in a paper about to appear in the Transactions of the Provincial Medical and Surgical Association, he proposes, as two new and valuable anæsthetic agents, common Coal Gas, and the Chloride of Olefant Gas, formerly called "Dutch Oil."

THE HOSPITALS OF PARIS.—In an official document, recently published by the French Government (in connexion with a scheme for the re-organization of the Hospitals and Asylums of Paris), we find the following interesting statistics of these Institutions:—"The management of Hospital Establishments in Paris, and of medical attendance at the homes of the patient, is under special regulations. This service involves, in receipts and expenses, the use of from 15 to 16 millions of francs, and employs 2,500 salaried officers. There are in Paris 15 hospitals, containing altogether 7,174 beds, and receiving annually 9,000 patients; four large alms-houses (*grandes hospices*), and seven asylums for 8,000 of the aged and infirm of both sexes. More than 100,000 persons receive medical aid at home, and 25,000 deserted children are taken care of. The hospitals are subdivided into *general* and *special*. In the first, acute diseases, wounds, etc., are treated. In the second, those cases are received which have a particular character, and call for a special mode of treatment. The GENERAL HOSPITALS, ten in number, are:—Hôtel Dieu, containing 810 beds; Sainte Marguerite, 300; La Pitié, 621; La Charité, 494; Saint-Antoine, 320; Necker, 329; Cochin, 125; Beaujon, 438; Bon-Secours, 323; De la République, 600. The SPECIAL HOSPITALS are seven in number, viz.: Saint-Louis, containing 825 beds; Du Midi, 300; De Loursine, 300; Des Enfants-Trouvés (Foundling Hospital), 600; Maison d'accouchement, 514; Maison des Cliniques, 120; Maison de Santé, 150. The above statistics are exclusive of the *hospices* or asylums for the various classes of indigent persons.

APPOINTMENTS.

- FALCONER, Wilbraham, M.D., appointed Physician to the Bath United Hospital, in the room of Dr. Daniel, resigned.
- HESTER, John Tarry, Esq., elected Surgeon to the Radcliffe Infirmary, Oxford, in the room of C. L. Parker, Esq., deceased.
- MASFEN, G. B. Esq., elected House-Surgeon to the Staffordshire General Infirmary.
- MILNE, Farquhar, Esq., elected Surgeon to the Chorlton-upon-Medlock Dispensary, Manchester, on January 25th.

OBITUARY.

- BURNES, David, M.D. (formerly of London), aged 42, at Montrose, on the 2nd February.
- CHALDECOTT, Isaac, Esq., aged 82, fifty-nine years Surgeon to the garrison of Portsmouth, at Dorking, on the 19th January.
- COLLEBURN, H. Esq., Surgeon (formerly of Kennington), aged 46, at Hastings, on 23rd Jan.
- DALLEY, Francis, M.D. (formerly of Stamford), aged 92, at Canterbury, on the 20th January.
- FIFE, Thomas Kirkby, Esq., Surgeon, aged 72, at Gateshead, on 20th February.
- FOWNES, George, Ph. D., F.R.S., aged 33, Professor of Practical Chemistry in University College, of phthisis, at Brompton, on February 6th.—Dr. Fownes was the author of the Actonian Prize Essay, noticed at p. 253, and also of an excellent Manual of Chemistry, compiled for the use of students.
- GREENWOOD, George, Esq., Surgeon, aged 32, at Preston, on 9th February.
- HOBSON, Nicholas George, Esq., Surgeon (late of London), at Madeira, on 4th February.
- MACKINNON, William, M.D., F.R.C.P. of Edin., aged 33, at Aberdeen, on 24th January.
- M'FARLANE, Dr., of Maybole, Perthshire, lately.
- PEYSSON, Dr. A., Chief Physician of the Military Hospital, Lyons, lately.
- QUENNELL, Robert William, Esq., Surgeon, at Hornchurch, Essex, on 3rd February.
- RENAULT, Dr., of Metz, author of "Reflections on the Nature of Neuralgia", and other productions, lately.
- SOPER, John, M.D., aged 52, at Ashburton, Devon, on February 6th.
- WATSON, Geo., Esq., Surgeon, of Glasgow, suddenly, aged 58, at Glasgow, on 17th February.

BOOKS RECEIVED.

BELL on Cholera and Ague. London: 1849. BLACKLOCK on Epidemic Cholera. Madras: 1848. BURGESS on Eruptions. London: 1849. COLLIER's Code of Safety. London: 1849. LEE (Edwin) on the Brain. Edinburgh: 1848. MADDEN on Pulmonary Consumption. London: 1849. MAUNOIR, La Porrette et Monte-Catini. Florence: 1848. MAUNOIR, Résumé des Rapports sur la Porrette et Monte-Catini. Florence: 1848. MARTIN on the "Undercliff," Isle of Wight. London: 1849. PROCEEDINGS of State Medical Convention. Lancaster, U.S.; 1848. PROCEEDINGS of American Medical Association, Vol. I. Philadelphia: 1848. PROCEEDINGS of National Medical Convention at New York and Philadelphia. Philadelphia: 1847. RANKING's Retrospect, Vol. VIII. London: 1849. RAYNER on Cod liver Oil. London: 1849. REID (James) on Infantile Laryngismus. London: 1849. UNDERWOOD's Medical Appointment Book. London: 1849. WIGLESWORTH on the Dependence of Animal Motion on Gravity. Swansea: 1849.

NOTICES TO CORRESPONDENTS.

The COMMUNICATIONS of Drs. JAMES BIRD, CORMACK, and TYLER SMITH, announced on the cover of last number, are unavoidably postponed, for want of space: and, for the same reason, the conclusion of the review of pamphlets on Cholera is delayed. A Paper, by Dr. MARSHALL HALL, has been received, and will appear. The authors of other communications will speedily be written to.